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Preface

The 2016 International Conference on Civil, Architecture and Environmental Engineering (ICCAE 2016) was held on November 4-6, 2016 in Taipei, Taiwan, organized by China University of Technology and Taiwan Society of Construction Engineers, aimed to gather professors, researchers, scholars and industrial pioneers from all over the world. ICCAE 2016 is the premier forum for the presentation and exchange of experiences, new advances and research results in the field of theoretical and industrial experience. The conference contained contributions promoting the exchange of ideas and rational discourse between educators and researchers from all over the world.

ICCAE 2016 is expected to be one of the most comprehensive Conferences focused on civil, architecture and environmental engineering. The conference promotes international academic cooperation and communication, and exchanging research ideas.

We would like to thank the conference chairs, organization staff, and authors for their hard work. By gathering together so many leading experts from the civil, architecture and environmental engineering fields, we believe this conference has been a very enriching experience for all participants. We hope all have had a productive conference and enjoyable time in Taipei!

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References

Visual support vector machine-based method for reliability-based design optimization

Bichon, B. J., Eldred, M. S., Swiler, L. P. S., Mahadevan, S., McFarland, J. M. (2008). “Efficient Global Reliability Analysis for Nonlinear Implicit Performance Functions,” AIAA Journal Vol. 46, No. 10, pp. 2459–2468. Du, X (2008b). Unified uncertainty analysis by the first order reliability method Journal of mechanical design 130:091401. Jones, D.R. (2001). “A taxonomy of global optimization methods based on response surfaces.” Journal of Global Optimization 21(4), 345–383. Jones, D.R., Schonlau, M. and Welch, W.J. (1998). “Efficient global optimization of expensive black-box functions.” Journal of Global Optimization 13(4), 455–492. Lee TH, Jung JJ (2008). A sampling technique enhancing accuracy and efficiency of metamodel-based RBDO: Constraint boundary sampling Computers & Structures 86:1463–1476. Song, Hyeongjin. “Efficient sampling-based Rbdo by using virtual support vector machine and improving the accuracy of the Kriging method.” PhD (Doctor of Philosophy) thesis, University of Iowa, 2013. Yao W, Chen X, Huang Y, van Tooren M (2013). An enhanced unified uncertainty analysis approach based on first order reliability method with single-level optimization Reliability Engineering & System Safety 116:28–37.

Study on the tunnel group traffic accident risk using a fuzzy comprehensive evaluation model

Table 3. Fuzzy comprehensive evaluation result of

Dayangti ditch tunnel.

Section i	1	2	3
v_i	2.7819	3.1027	2.8536

Table 4. Fuzzy comprehensive evaluation result.

Tunnel	Dayangti ditch tunnel	West ditch tunnel 1#	West ditch tunnel 2#	Yangjuan tunnel
v	3.0819	3.0859	3.1028	3.1153

Applications of new reinforcement methods in city tunnels for shield launching and arriving

Hu Jun, Yang Ping, Dong Chaowen, et al. Study on Numerical Simulation of Cup-shaped Horizontal Freezing Reinforcement Project near Shield Launching [C]. 2011 International Conference on Electric Technology and Civil Engineering (ICETCE). China: IEEE. 2011, 4: 5522-5525.

Hu Jun, Zeng Hui, Wang Xiaobin. Numerical Analysis of Temperature Field of Cup-shaped Frozen Soil Wall Reinforcement at Shield Shaft [J]. Applied Mechanics and Materials, 2013, 341-342(5): 1467-1471. Hu Jun, Zeng Hui, Wang Xiaobin. Study on Construction Risk Analysis and Risk Counter- measures of River-crossing Tunnel of Large-diameter Metro [J]. Applied Mechanics and Materials, 2012, 166(5): 2680-2683. Hu Jun, Zeng Hui, Wang Xiaobin. Experimental Research on the Physi-mechanical Performances of Geosynthetics [J]. Applied Mechanics and Materials, 2013, 341-342(5): 33-37. Hu, J. "Study on the Reinforcement Methods of Subway Large-diameter Shield Launching in the Sandy Clay with High Water Pressure", Thesis, Nanjing Forestry University, 2012. (in Chinese) Zeng Hui, Hu Jun, Yang Ping. A Numerical Simulation Study on the Chemical Reinforcement Area at Shield Start Shaft [C]. 2011 International Conference on Electric Technology and Civil Engineering (ICETCE). China: IEEE. 2011, 4: 29-34.

Research on the stress characteristics of concrete carrier pile based on finite element analysis

Hou Xiaojun. (2015). Application of Carrier Pile in a Residential Project in Beijing. Degree. Beijing: China University of Geosciences (Beijing).

Jizhong Wang. (2009). Stress Mechanism and Technical Innovation of Carrier Pile. J. Engineering Exploration. 1: 5-8.

Rui Li. (2011). Research on Composite Foundation of Carrier Pile. Degree. Xi'an: Xi`an University of Architecture and Technology.

Yachao You & Xiaomeng Li. (2009). Application of Carrier Pile in a Certain Actual Engineering. J. Architecture. 2: 119-120.

Yingshe Su. (2011). Application of Carrier Pile Technology in Collapsible Loess Area. J. Architectural Science. 27(3): 97-99.

Yongyang Zhang & Xinchao Chen. (2008). Research on Vertical Ultimate Bearing Capacity of Compound Carrier Tamping Extended Pile. J. Resources Environment & Engineering. 22(10): 223-225.

Zhuo Zhuang & Xiaochua You n & Jianhui Liao, et al. (2009). Finite Element Analysis and Application Based on ABAQUS. Beijing: Tsinghua University Press.

Theoretical analysis of the deformation of shield tunnel segment under fire

Amin Heidarpour, Tung Hoang Pham, Mark Andrew Bradford. (2010). Nonlinear thermoelastic analysis of composite steel-concrete arches including partial interaction and elevated temperature loading. J engineering structure. 32, 3248–3257.

Bailey CG. (2004). Membrane action of slab/beam composite floor systems in fire. J Eng Struct. 26(12), 1691–1703.

Bradford MA, Ranzi G, Ansourian P. (2006). Composite beams in sub-frame assemblages with longitudinal and transverse partial interaction at elevated temperatures. In: International conference on metal structures. 354–50.

Bradford MA. (2006). Generic model for a composite T-beam at elevated temperature. In: Fourth international workshop on structures in fire. 805–812.

Guo Xingjun. (2013). Experimental Study and Numerical Simulation Analysis of Fire Resistance Performance of Concrete Segment Component of Shield Tunnel D. Changsha: Zhongnan university.

Guo Zhenghai, Shi Xudong. (2003). Behavior of reinforced concrete at elevated temperature and its calculation M. Beijing: Tsinghua University Press. 18–81. Heidarpour A, Bradford MA. Generic nonlinear modelling of restrained steel beams at elevated temperatures. J Eng Struct. 31(11), 2787–2796. Hong-peng Lai, Shu-yong Wang, Yong-li Xie. (2014). Experimental research on temperature field and structure performance under different lining water contents in road tunnel fire. J Tunneling and underground space technology. 43, 327–335. Huang Z, Burgess IW, Plank RJ. (1999). The influence of shear connectors on the behaviour of composite steelframed buildings in fire. J Constr Steel Res. 51(3), 219–237. Huang Z, Burgess IW, Plank RJ. (2000). Threedimensional analysis of composite steel-framed buildings in fire. J Struct Eng, ASCE. 126(3), 389–397. Kodur, V.K.R., Dwaikat, M. (2008). A numerical model for predicting the fire resistance of reinforced concrete beams. J Cem. Concr. Compos. 30, 431–443. Kruppa J, Zhao B. (1995). Fire resistance of composite beams to Eurocode 4 part 1.2. J Constr Steel Res. 33, 51–69. Li Zhongyou, Liu Yuanxue, Liu Shulin, Tan Yizhong Ge Zengchao. (2012). Theoretical Analysis Model of Deformation Behavior of Tunnel Linings Subjected to Fire Load J.Rock and Soil Mechanics. 11, 307–310. Pi Y-L, Bradford MA, Uy B. (2002) In-plane stability of arches. Internat J Solids Structures. 39(1), 105–125. Pi Y-L, Bradford MA. (2004). Elastic flexural torsional buckling of fixed arches. Quart J Mech Appl Math. 57(4), 551–569. Qiang Jian (2007). A Study onTunnel Lining after Fire Damage to Subway and Evaluation Method Fire Scenarios. D. Shanghai: Tongji university. Soon-Wook Choi, Junhwan Lee, Soo-Ho Chang. (2013). A holistic numerical approach to simulating the thermal and mechanical behavior of a tunnel lining subject to fire. J Tunneling and underground space technology. 35, 122–124. Yan Zhiguo. (2007). A Study on Mechanical Behaviors and Fireproof Methods of Tunnel Lining Structure During and after Fire Scenarios D. Shanghai: Tongji university. Zhi-guo Yan, He-hua Zhu, J. Woody Ju. (2013). Behavior of reinforced concrete and steel fiber reinforced concrete shield TBM tunnel linings exposed to high temperatures. J Construction and building materials. 38, 610–618. Zhi-guo Yan, Yi Shen, He-hua Zhu, Xiao-jun Li, Yong Lu. (2015). Experimental investigation of reinforced concrete and hybrid fibre Reinforced concrete shield tunnel segments subjected to elevated temperature. J Fire safety journal. 71, 86–99.

Halirova, M., Tymova, P., Perinkova, M. 2015. Sustainable Construction in the Conservation Area. Advanced Engineering Forum: 132–136.

Lipušček, I., Bohanec, M., Oblak, L., Zadnik Stirn, L. 2010. A multi-criteria decision-making model for classifying wood products with respect to their impact on environment. International Journal of Life Cycle Assessment:359–367.

Perina, Z., Halirova, M., Wolfova, M., Fabian, R., Sevcikova, H., Rykalova, E. 2014. Diagnostics of Building Claddings and Design of Technical Solutions with Regards to Energy Performance. Advanced Materials Research. October 2014:566–572. Perina, Z., Sevcikova, H., Fabian, R., Halirova, M., Rykalova, E., 2016. The impact of balcony glazing on the selected building envelope. Applied Mechanics and Materials. 2015: 628-6315-322. Sevcikova, H., Rykalova, E., Fabian, R., Perina, Z., Halirova, M., Wolfová, M. 2015. Mold Issue in Details within the External Walled Structure. Applied Mechanics and Materials. April 2015: 628–631. Takano, A., Hughes, M., Winter, S. 2014. A multidisciplinary approach to sustainable building material selection: A case study in a Finnish context. Building and Environment:526–535.

Evaluation of the ultimate strength of RC I-shaped members subjected to a combined action

Collins M.P. (1973). Torque-twist characteristics of rein-forced concrete beams [J]. Inelasticity and Nonlinearity in Structural Concrete. 1973. 211-231. Hsu T.T.C. (1988). Softened Truss Model Theory for Shear and Torsion [J]. ACI Structural Journal. 1988. 85 (6): 624-635. Huang Zhen, & Liu Xila (2007). Unified approach for analysis of box-section members under combined actions. [J]ASCE Journal of Bridge Engineering, 2007, Vol. 12, No.4:494-499. Pang XB, & Hsu T.T.C. (1996). Fixed Angle Softened Truss Model for Reinforced Concrete [J]. ACI Structural Journal. 1996. 197-207. Sudhira De Silva, Hiroshi Mutsuyoshi, & Eakarat Witchureangkrai (2008). Evaluation of Shear Crack Width in I-Shaped Prestressed Reinforced Concrete Beams. Journal of Advanced Concrete Technology Vol.6, NO.3, 443-458, October 2008. Vecchio F.J., & Collins M.P. (1986). The modified compression field theory for reinforced concrete elements subjected to shear [J]. ACI Journal. 1986.83(2): 219-231. Vecchio F.J. (2000). Disturbed stress field model for reinforced concrete: formulation [J]. Journal of Structural Engineering. 2000. 126 (9): 1070-1077. Wang Pu, Huang Zhen, & Sun Liang (2014). A unified model of ultimate capacity of RC members with a rectangular section under combined actions, 2014 International Conference on Sustainable Development of Critical Infrastructure IC-SDCI 2014, 204-212.

3 Three-dimensional centrifuge and numerical modeling of pile group due to twin tunnelling in different depth

IMMMFE (1985). Axial pile loading test-part 1: static loading. Geotechnical Testing Journal, 8: 79–90.

Jacobsz, S.W., Standing, J.R., Mair, R.J., Hagiwara, T., & Sugiyama, T. (2004). Centrifuge modelling of tunnelling near driven piles. Soils and Foundations, 44(1): 49–56.

Loganathan, N., Poulos, H.G., & Stewart, D.P. (2000). Centrifuge model testing of tunnelling-induced ground and pile deformations. Géotechnique, 50: 283–294.

Marshall, A. (2009). Tunnelling in sand and its effect on pipelines and piles. Ph.D. dissertation, Cambridge: University of Cambridge.

Marshall, A.M. (2012). Tunnel-Pile Interaction Analysis Using Cavity Expansion Methods. Journal of Geotechnical and Geoenvironmental Engineering, 138(10): 1237–1246. doi: 10.1061/(ASCE)GT.1943-5606.0000709.

Marshall, A.M. & Mair, R.J. (2011). Tunnelling beneath driven or jacked end-bearing piles in sand. Canadian Geotechnical Journal, 48(12): 1757–1771. doi: 10.1139/t11-067.

Ng, C.W.W. & Lu, H. (2014). Effects of the construction sequence of twin tunnels at different depths on an existing pile. Canadian Geotechnical Journal, 51(2): 173–183. doi: 10.1139/cgj-2012-0452.

Ng, C.W.W., Yau, T.L.Y., Li, J.H.M., & Tang, W.H. (2001). New Failure Load Criterion for Large Diameter Bored Piles in Weathered Geomaterials. Journal of Geo technical and Geoenvironmental Engineering, 127(6): 488–498. doi: 10.1061/(ASCE)10900241(2001)127:6(488).

Park, K.H. (2004). Elastic solution for tunnellinginduced ground movements in clays. International Journal of Geomechanics, 4(4): 310–318. doi: 10.1061/(ASCE)1532-3641(2004)4:4(310).

Peng, S. (2012). Influence of stress relief due to deep excavation on capacity of pile foundations. PhD thesis, Hong Kong University of Science and Technology, Hong Kong.

Soomro, M.A., Hong, Y., Ng, C.W.W., Lu, H., & Peng, S.

(2015). Load transfer mechanism in pile group due to single tunnel advancement in stiff clay. Tunnelling and Underground Space Technology, 45: 63-72. doi: 10.1016/j.tust.2014.08.001.

Standards, P.R.O.C. (2008). Technical code for building pile foundations. China Architecture and Building Press.

Index selection and weight analysis of the underground development of urban municipal public facilities

Deng, X. & Li, J. & Zeng, H. 2012. Research on Computation Methods of AHP Wight Vector and Its Applications. Mathematics in Practice and Theory 42(7):93-100.

Shu, Y. 2002. The development And The Uses of Underground space resources. Shanghai: Tongji University Press.

Tong, L.X. 1994. Underground Architecture. Ji'nan: Shandong Science & Technology Press.

Tong, L.X. & Zhu, W.J. 2009. The city underground space resources evaluation and exploitation and utilization planning. Beijing: China Architecture Industry Press. Yan, P. & Dai, S.Z. 2010. Integration of Infrastructure Facilities Under the Background of Intensive Land Use. City Planning 186(1):109-115. Zhang, B. & Huang, Y. & Cheng, Y. 2010. The Low carbon and development path of underground municipal public utilities. Construction Economy. 335(9):97-100. Zhu, D.M. 2004. The basic law of the city underground space development. Underground Space 24(3):365-367. Zhang, Y. & Liu, C.L. & Yang, J.S. 2016. Reseach on Sustainable Development of Promotion the Construction of Urban Underground Integrated Pap Rack. [J]. Water & Wastewater Engineering 42(6):1-3.

Risk assessment of pipelines in operation based on AHP and application of MATLAB

Benkherouf A, Auiodina A Y. Leak detection and location in gas pipelines. IEE Processing, 1988, 135 (2): 142–148.

He Furong. Research and application of analytic hierarchy process in construction bidding. Southwest Jiao Tong University, 2014, ChengDu.

Jiang Delin, Wang Zhijie and Sun Xia. Failure mode and preventive measures of pressure pipeline. Chemical Technology and Development, 2011(40)5: 53–54.

Liu Jiaming. The application of fuzzy comprehensive evaluation method in the safety of oil and gas pipelines. Chemical Engineering and Equipment, 2014(1): 201–204. Q/SY1180-2009, Specification for Pipeline Integrity Management. Song Fei, Zhao Fasuo. The application of analytic hierarchy process and Matlab program for risk analysis of Underground engineering. Journal of Earth Sciences and Environment, 2008(30)3: 292–296. Su Yi, Zhang Hong. Research on the risk of credit business of commercial banks based on analytic hierarchy process. New West, 2011(13): 46–47. Thomas jones, Harold Berger. Thermographie detection of impact damage in graphite-epoxye composites. Materials Evaluation, 1992 (11): 1446–1453. Wang Junfang, Yu Qianxiu. Uncertain measurig model applied to safety evaluation of oil and gas pipeline systems. Oil & Gas Storage and Transportation, 2009(28)5: 14–18. Wang Kai. Study on Risk Assessment Method Based on Fault Tree Analysis in Long Pipelines. Wuhan University of Technology, 2009, WuHan. Zhang Zhihong, Wang Lijuan, LI Kefu. Development Trend of oil & Gas Storage and Transportation Technology in China. Petroleum Science and Technology Forum, 2012, 31(1): 1-6.

Effect of ground co006Editions on design parameters for bridge foundations

AASHTO (2010). AASHTO LRFD Bridge Design Specifications. American Association of State Highway and Transportation Officials, Washington, DC.

ATC-63 (2008). Quantification of Building Seismic Performance Factors. ATC-63 Project Report prepared by the Applied Technology Council for the Federal Emergency Management Agency, Washington, DC. Bieniawski, ZT. (1974). Geomechanics Classification of Rock Masses and its Application in Tunnelling, Proceedings of the 3rd International Congress on Rock Mechanics, ISRM, Denver, 2(2), 27–32. CEN (2003). European Committee for Standardization TC250/SC8/, Eurocode 8: Design Provisions for Earthquake Resistance of Structures, Part 1.1: General rules, seismic actions and rules for buildings, PrEN1998-1. Chaudhary, M.T.A. (2016a). Seismic response of bridges supported on shallow rock foundations considering SSI and pier column inelasticity, KSCE Journal of Civil Engineering, DOI:10.1007/s12205-016-0352-5, 2016, pp. 1–11. Chaudhary, M.T.A. (2016b). Implication of soil and seismic ground motion variability on dynamic pile group impedance for bridges, Research Project Report # EV01/15, Kuwait University, Kuwait. Darendeli, M.B. (2001). Development of a new family of normalized modulus reduction and material damping curves, PhD thesis, University of Texas, Austin, 394 pp. Douglas, J., Gehl, P., Bonilla, L.F., Scotti, O., Régnier, J., Duval, A.M. and Bertrand, E. (2009). Making the most of available site information for empirical ground-motion prediction, Bulletin of the Seismological Society of America, 99(3), 2009, pp. 1502–1520. Guerreiro, P., Kontoe, S., and Taborda, D. (2012). Comparative study of stiffness reduction and damping curves, 15th World Conference on Earthquake Engineering, Lisbon, CD ROM, pp. 1–10. Kottke, A.R., and Rathje, E.M. (2008). Technical Manual for Strata. PEER Report 2008/10. University of California, Berkeley, California, http://nees.org/ resources/strata.

Research on multisource information fusion of tunnel geological prediction based on evidence theory

Bi, W.H., Zhang, A., Li, C. (2016). “Weighted evidence combination method based on new evidence conflict measurement approach.” Control and Decision, 31(1), 73–78. Cao, W.G., Yang, W.K., Qu, Y.C. (2015). “Combination evaluation method for the classification of rock mass quality based on d-s theory of evidence.” Journal of Human University (Natural Sciences), 42(5), 86–91. Du, X.L., Zhang, X.F., Zhang, M.J., et al. (2014). “Risk synthetic assessment for deep pit construction based on evidence theory” Chinese Journal of Geotechnical Engineering, 36(1), 155–161. Fan, X., Zuo, M.J. (2006). “Fault diagnosis of machines based on D-S evidence theory.” Pattern Recognition Letters, 27(5), 366–385. Forte, E., Pipan, M., Casabianca, D., et al. (2012). “Imaging and characterization of a carbonate hydrocarbon reservoir analogue using GPR attributes.” Journal of Applied Geophysics, 81, 76–87. Ge, Y.H., Li, S.C., Zhang, Q.S., et al. (2010). “Comprehensive geological prediction based on risk evaluation during tunneling in karst area.” Chinese Journal of Geotechnical Engineering, 32(7), 1124–1130. Han, D.Q., Yang, Y., Han, C.Z. (2014). “Advances in DS evidence theory and related discussions.” Control and Decision, 29(1), 1–11. Jia, Y.P., Lü, Q., Shang, Y.Q., et al. (2014). “Rock burst prediction based on evidence theory.” Chinese Journal of Geotechnical Engineering, 36(6), 1079–1086. Jiang, W., Zhang, A., Yang, Q. (2015). “Fuzzy approach to construct basic probabil ity assignment and its application in multi-sensor data fusion systems.” Chinese Journal of Sensors and Actuators, 21(10), 1717–1720. Lin, H., Lin, C., Weng, R.C., et al. (2007). “A note on plat’s probabilistic outputs for support vector machines.” Machine Learning, 68(3), 267–276. Tan, Q., Xiang, Y.H. (2008). “Application of weighted evidential theory and its information fusion method in fault diagnosis.” Journal of Vibration and Shock, 27(4), 112–116. Xiang, Y.H., Zhang, G.Q., Pang, Y.X. (2015). “Multiinformation fusion fault diagnosis using SVM & improved evidence theory.” Journal of Vibration and Shock, 34(13), 71–77. Xu, S.C., Chen, J.P., Zuo, C.Q., et al. (2011). “Application of the fuzzy comprehensive evaluation method to karst forecasting in tunnel construction.” Modern Tunnelling Technology, 48(5), 76–81. Xu, S.C., Zhang, S.L., Chen, J.P. (2013). “The application of fuzzy-analytic evaluation in geological disaster assessment for tunnel construction.” Chinese Journal of Underground Space and Engineering, 9(4), 946–953. Yuan, X.S., Zhang, Q.S., Xu, C.H., et al. (2011). “Analytic hierarchy process based optimization for tunnel comprehensive geologic prediction.” Journal of Engineering Geology, 19(3), 346-351. Zhou, D., Liu, Z.H., Wu, H., et al. (2015). “Application of the comprehensive geological prediction techniques in the lingjiao tunnel.” Modern Tunneling Technology, 52(5), 171-177.

Pushover analysis of modularized prefabricated column-tree steel frame

Astaneh-Asl A. 1997. Seismic design of steel column-tree moment-resisting frames. Structural Steel Educational Council, Berkeley, California.

Chen, C. C., Lin, C.C., & Lin, C.H. 2006. Ductile moment connections used in steel column-tree moment- resisting frames. Journal of Constructional Steel Research, 62(8), 793–801.

Chen, C.C., & Lin, C.C. 2013. Seismic performance of steel beam-to-column moment connections with tapered beam flanges. Engineering Structures, 48, 588–601. Kim, T., Whittaker, A.S., Gilani, A.S.J., Bertero, V.V., & Takhirov, S.M. 2002. Experimental evaluation of platereinforced steel moment-resisting connections. Journal of Structural Engineering, 128(4), 483–491. Lee, C.H., & Kim, J.H. 2007. Seismic design of reduced beam section steel moment connections with bolted web attachment. Journal of Constructional Steel Research, 63(4), 522–531. Liu, X.C., Pu, S.H., Zhang, A.L., Xu, A.X., Ni, Z., & Sun, Y., et al. 2015. Static and seismic experiment for bolted-welded joint in modularized prefabricated steel structure. Journal of Constructional Steel Research, 115, 417–433. Liu, X.C., Xu, A.X., Zhang, A.L., Ni, Z., Wang, H.X., & Wu, L. 2015. Static and seismic experiment for welded joints in modularized prefabricated steel structure. Journal of Constructional Steel Research, 112, 183–195. Mcmullin, K.M. & Astaneh-Asl, A. 2003. Steel semirigid column-tree moment resisting frame seismic behavior. Journal of Structural Engineering, 129(9), 1243–1249. Oh, K., Li, R., Chen, L., Hong, S.B., & Lee, K. 2014. Cyclic testing of steel column-tree moment connections with weakened beam splices. International Journal of Steel Structures, 14(3), 471–478. Popov, E.P., Yang, T.S., & Chang, S.P. 1998. Design of steel MRF connections before and after 1994 Northridge earthquake. Engineering Structures, 20(12), 1030–1038. Uang, C.M., Yu, Q.S., Noel, S., & Gross, J. 2000. Cyclic testing of steel moment connections rehabilitated with RBS or welded haunch. Journal of Structural Engineering, 126(1), 57–68. Zhang, A.L., & Liu, X.C. 2013. The New Development of Industrial Assembly High-Rise Steel Structure System in China. Pacific Structural Steel Conference, Sentosa, Singapore, pp. 976–981.

Study on reuse of heritages of an old industrial area in Harbin Gongyijie area against the backdrop of urban renewal

Li, D. (ed.) 2009. Principles of urban planning. Beijing: China Building Industry Press. Li, H. & Xiao, Y. 2014. Conservation and renewal of urban old industrial areas under the guidance of cultural planning. Planners. 07:40–44. Li, L. 2012. Study on the protection and reuse of industrial historic buildings in the industrial area of Hanyang. Wuhan: Huazhong University of Science and Technology. Li, R., Chi, X. & Lin, G. 2014. Renewal strategy of old industrial blocks in the perspective of new urban development concept. Planners. 30(3):208–212. Nan, X. 2013. Analysis and optimization strategy on the transformation of the old industrial zone of Shenzhen overseas Chinese town under the ecological perspective. Shenzhen: Harbin Institute of Technology. Zhou, Q., Lei, H. & Chen, X. 2009. Explore the harmonious way of the transformation of the old industrial areas of the city. City Planning Review 3:67–70 + 86.

Research on lateral resistant behavior and design of multicover plates connection for prefabricated steel plate shear wall with beam-only-connected infill plate

Choi, I.R. & Park, H.G. (2009). Steel plate shear walls with various infill plate designs. Journal of Structural Engineering, 135(7), 785–796.

Clayton, P.M., Berman, J.W. & Lowes, L.N. (2015). Seismic performance of self-centering steel plate shear walls with beam-only-connected web plates. Journal of Constructional Steel Research, 106, 198–208.

Guo, Y.L. & Zhou, M. (2009). Categorization and performance of steel plate shear wall. Journal of Architecture and Civil Engineering, 26(3):1–13. (in Chinese)

Hosseinzadeh, S.A.A. & Tehranizadeh, M. (2014). Behavioral characteristics of code designed steel plate shear wall systems. Journal of Constructional Steel Research, 99(8), 72–84.

Thorburn, L.J., Kulak, G.L. &Montgomery, C.J. (1983). Analysis of steel plate shear walls. Edmonton: University of Alberta.

Xue, M. & LU, L.W. (1994). Interaction of infilled steel shear wall panels with surrounding frame members. Proceedings of Structural Stability Research Council Annual Technical Session, Bethlehem, PA, 339–354.

Zhang, A.L. (2014). The key issues of system innovation, drawing up standard and industrialization for modularized prefabricated high-rise steel structures. Industrial Construction, 44(8):1–6. (in Chinese)

Zhang, A.L. & Liu X.C. (2013). The new development of industrial assembly high-rise steel structure system in China. Proceeding of 10th Pacific Structural Steel Conference. Singapore.

Research on sensitivity and control criteria of cable length error in a double-strut cable dome

American Society of Civil Engineers. 1997. ASCE/ SEI 19-96 Structural applications of steel cables for buildings. Washington, D.C.: ASCE Press. Fu, F. 2005. Structural behavior and design methods of tensegrity domes. Journal of Constructional Steel Research, 61(1), 23–35. Gao, B.Q., & Weng, E.H. 2004. Sensitivity analyses of cables to suspen-dome structural system. Journal of Zhejiang University Science, 5(9), 1045–1052. Ge, J. et al. 2012. Analysis of tension form-finding and whole loading process simulation of cable dome structure. Journal of Building Structures, 33(4), 1–11. Geiger, D.H., Stefaniuk, A., & Chen, D. 1986. The design and construction of two cable domes for the Korean Olympics. In Proc. of the IASS Symposium on Shells, Membranes and Space Frames, 2, 265–272. Guo, Y. et al. 2011. Tensioning experiment on spoke structural roof of Bao'an Stadium. Journal of Building Structures, 32(3), 1–10. Juan, S.H., & Tur, J.M.M. 2008. Tensegrity frameworks: static analysis review. Mechanism and Machine Theory, 43(7), 859–881. Levy, M.P. 1994. The Georgia Dome and beyond: achieving lightweight-long span structures. In Spatial, Lattice and Tension Structures, 560–562. Ministry of Housing and Urban-Rural Development of the People's Republic of China. 2012. JGJ 257-2012 Technical specification for cable structures. Beijing: China Architecture & Building Press. Motro, R., & Nooshin, H. 1984. Forms and forces in tensegrity systems. In Proceedings of the Third International Conference on Space Structures, 180–185. Nowak, A.S. & Collins, K.R. 2012. Reliability of structures. CRC Press. Olsson, A., Sandberg, G., & Dahlblom, O. 2003. On Latin hypercube sampling for structural reliability analysis. Structural safety, 25(1), 47–68. Quirant, J., Kazi-Aoual, M.N., & Motro, R. 2003. Designing tensegrity systems: the case of a double layer grid. Engineering structures, 25(9), 1121–1130. Richard, B.F. 1962. Tensile-integrity structures. U.S. Patent 3,063,521 Nov.13 1962. Tian, G. et al. 2011. Experiment on sensitivity to construction tolerance and research on tolerance control criteria in spoke structural roof of Bao'an Stadium. Journal of Building Structures, 32(3), 11–18. Tibert, A.G., & Pellegrino, S. 2011. Review of formfinding methods for tensegrity structures. International Journal of Space Structures, 26(3), 241–255. Zhang, A.L., Sun, C., & Jiang, Z.Q. 2016. Calculation method of prestress distribution for levy cable dome with double struts considering self-weight. Engineering

mechanics. doi: 10.6052/j.issn.1000-4750.2016.01.0056
Zhang, G. et al. 2012. Design and research on cable dome structural system of the National Fitness Center in Ejin Horo Banner, Inner Mongolia. Journal of Building Structures, 33(4), 12-22. Zhang, J.H., Wang, Z.Q., & Zhang, Y.G. 2011. Sensitivity Analysis of Manufacture Errors for Cable Dome. In Advanced Materials Research, 163, 822-827.

Structural design of a prefabricated steel frame structure with inclined braces

Case, F., Beinat, A., Crosilla, F., & Alba, I. M. (2014). Virtual trial assembly of a complex steel structure by Generalized Procrustes Analysis techniques. Automation in Construction, 37, 155–165.

Dao, T. N., & van de Lindt, J. W. (2012). Seismic performance of an innovative light-frame cold-formed steel frame for midrise construction. Journal of Structural Engineering, 139(5), 837–848.

Festjens, H., Chevallier, G., & Dion, J. L. (2013). A numerical tool for the design of assembled structures under dynamic loads. International Journal of Mechanical Sciences, 75, 170–177.

GB50011-2010, "Code for seismic design of buildings," China Planning Press, 2010 (in Chinese). Jaillon, L., & Poon, C. S. (2009). The evolution of prefabricated residential building systems in Hong Kong: A review of the public and the private sector. Auto mation in Construction, 18(3), 239–248. JGJ99-1998, "Technical specification for steel structure of tall buildings," China Planning Press, 1998 (in Chinese). Liu, W. L. (2012). Research on Design and Application of Steel Prefabricated House. M.S. thesis, Shandong University, Jinan, China, 2012. Teh, L. H., & Gilbert, B. P. (2012). Net section tension capacity of cold-reduced sheet steel channel braces bolted at the web. Journal of Structural Engineering, 139(5), 740–747. Wang, W., Chen, Y. Y., Yu, Y. C., Tong, L. W., Yang, J. X., Liu, D. W., & Furumi, K. (2012). Floor-by-floor assembled steel braced structures for prefabricated buildings. Building Structure, 42(10), 48–52. Xiaoyun, G., & Hong, Y. (2001). Discussion on application of prefabricated houses in foreign countries [J]. Industrial Construction, 8, 005. Ye, Z. H. (2012). Study on the Present situation and countermeasure of the domestic prefabricated steel structure. M.S. theiss, Nanchang University, Nanchang, China, 2012. Zha, X. X., Wang, L. L., & Zhong, S. T. (2010). The method of constructing mutil-storied used shipping container buildings and the deduction of practical formula about structural security. Building Structure, 40(6), 462–465. Zhang, A. L., & Liu, X. C. (2013, October). The new development of industrial assembly high-rise steel structure system in China. In Proceedings of the 10th Pacific Structural Steel Conference (PSSC'13), 976–981.

A study on the design of an ungated community

Christiande Portzamparc. Open Street — A Europeanstyle residential road and Massena New Area. Urban Environment Design. 2015, 93(6).

Shanshan Wu, Gangyi Tan. Discussing open community based on the Aga Khan Award Winners-Aranya Community. Community Design. 2013(1):137-141.

Yong YU, Zhitao Li. The Planing Concept of Open Block and Its Enlightenment on the Urban Residential Construction in China. Planners. 2006, 22(02): 101-104.

Protection and utilization of Gaichun Garden ruins of the Summer Palace

Cong Yipeng. & Zhao di. 2015. An Aesthetic Analysis of Plants Landscape in Gaichun Garden during Qingyi Garden Period. China Landscape Architecture 11: 82–85.

(Ming) Jicheng (original), Chen Zhi (notes). 1988. The explanation of Yuan Ye: 58. Beijing: Chinese architectural industry press.

Summer Palace Management Office(ed.). 2006. The Summer Palace Journal. Beijing: Chinese Forestry Publishing House.

Wang Qiheng et al. 2009. Collocation Analysis of Plant Historic Landscapes in the Summer Palace. Journal of Tianjin University (Social Sciences) 06:504–508.

Development of a web-based hybrid BIM cost-estimating system for fire safety engineering

Ahmad, I.U., Russell, J.S., & Abou-Zeid, A. (1995). Information Technology (IT) and integration in the construction industry. Construction Management and Economics, 13(2), 163–171.

Bradley, D.C., Mascaro, M., & Santhakumar, S. (2005). A relational database for trial-based behavioral experiments. Journal of neuroscience methods, 141(1), 75–82.

Bryde, D., Broquetas, M., & Volm, J.M. (2013). The project benefits of Building Information Modelling (BIM). International Journal of Project Management, 31(7), 971–980.

Cheah, C.Y., & Chew, D.A. (2005). Dynamics of strategic management in the Chinese construction industry. Management Decision, 43(4), 551–567.

Chen, H.M., & Hou, C.C. (2014). Asynchronous online collaboration in BIM generation using hybrid client-server and P2P network. Automation in Construction, 45, 72–85.

Chen, L., & Luo, H. (2014). A BIM-based construction quality management model and its applications. Automation in construction, 46, 64–73.

Cheng, B., & Wang, Y. (2010). BIM's content and its application in contemporary architectural design. In Management and Service Science (MASS), 2010 International Conference on (pp. 1–4). IEEE.

Cheng, M.Y., Tsai, H.C., & Hsieh, W.S. (2009). Webbased conceptual cost estimates for construction projects using Evolutionary Fuzzy Neural Inference Model. Automation in Construction, 18(2), 164–172.

Chien, K.F., Wu, Z.H., & Huang, S.C. (2014). Identifying and assessing critical risk factors for BIM projects: Empirical study. Automation in Construction, 45, 1–15.

Choi, J., Choi, J., & Kim, I. (2014). Development of BIMbased evacuation regulation checking system for high-rise and complex buildings. Automation in Construction, 46, 38–49.

Chou, J.S., & O'Connor, J.T. (2007). Internet-based preliminary highway construction cost estimating database. Automation in Construction, 17(1), 65-74.

Coronel, C., & Morris, S. (2016). Database systems: design, implementation, & management. Cengage Learning.

Ding, L., Zhou, Y., & Akinci, B. (2014). Building Information Modeling (BIM) application framework: The process of expanding from 3D to computable nD. Automation in construction, 46, 82-93.

Godager, B.A. (2011). Analysis of the information needs for existing buildings for integration in modern BIM-based building information management.

Grilo, A., & Jardim-Goncalves, R. (2011). Challenging electronic procurement in the AEC sector: A BIM-based integrated perspective. Automation in Construction, 20(2), 107-114.

Han, N., Yue, Z.F., & Lu, Y.F. (2012). Collision detection of building facility pipes and ducts based on BIM technology. In Advanced Materials Research (Vol. 346, pp. 312- 317). Trans Tech Publications.

Isikdag, U. (2012). Design patterns for BIM-based serviceoriented architectures. Automation in Construction, 25, 59-71. Isikdag, U. (2012). Design patterns for BIM-based serviceoriented architectures. Automation in Construction, 25, 59-71. Isikdag, U., Underwood, J., & Aouad, G. (2008). An investigation into the applicability of building information models in geospatial environment in support of site selection and fire response management processes. Advanced engineering informatics, 22(4), 504-519. Jrade, A., & Alkass, S. (2001). A conceptual cost estimating computer system for building projects. AACE International Transactions, IT91. Kim, H.J., Seo, Y.C., & Hyun, C.T. (2012). A hybrid conceptual cost estimating model for large building projects. Automation in Construction, 25, 72-81. Kim, I., Kim, J., & Seo, J. (2012). Development of an IFC-based IDF converter for supporting energy performance assessment in the early design phase. Journal of Asian Architecture and Building Engineering, 11(2), 313-320. Kobes, M., Helsloot, I., De Vries, B., & Post, J.G. (2010). Building safety and human behaviour in fire: A literature review. Fire Safety Journal, 45(1), 1-11. Lee, S.K., Kim, K.R., & Yu, J.H. (2014). BIM and ontology-based approach for building cost estimation. Automation in construction, 41, 96-105. Meža, S., Turk, Ž., & Dolenc, M. (2014). Component based engineering of a mobile BIM-based augmented reality system. Automation in construction, 42, 1–12. Miettinen, R., & Paavola, S. (2014). Beyond the BIM utopia: Approaches to the development and implementation of building information modeling. Automation in construction, 43, 84–91. Park, J., Kim, B., Kim, C., & Kim, H. (2011). 3D/4D CAD applicability for life-cycle facility management. Journal of computing in civil engineering, 25(2), 129–138. Popov, V., Mikalauskas, S., Migilinskas, D., & Vainiūnas, P. (2006). Complex usage of 4D information modelling concept for building design, estimation, sheduling and determination of effective variant. Technological and economic development of economy, 12(2), 91–98. Porter, S., Tan, T., Tan, T., & West, G. (2014). Breaking into BIM: Performing static and dynamic security analysis with the aid of BIM. Automation in Construction, 40, 84–95. Qiu, X. (2011). Building Information Modelling (BIM) adoption of construction project management based on Hubei Jingzhou bus terminal case. In 2011 International Conference on Business Computing and Global Informatization. Sonmez, R. (2004). Conceptual cost estimation of building projects with regression analysis and neural networks. Canadian Journal of Civil Engineering, 31(4), 677–683. Turban, E., Leidner, D., McLean, E., & Wetherbe, J. (2007). Information technology for management: transforming organizations in the digital economy. John Wiley & Sons, Inc. Vanlande, R., Nicolle, C., & Cruz, C. (2008). IFC and building lifecycle management. Automation in Construction, 18(1), 70–78. Zhiliang, M., Zhenhua, W., Wu, S., & Zhe, L. (2011). Application and extension of the IFC standard in construction cost estimating for tendering in China.Automation in Construction, 20(2), 196–204.

Test and parametric analysis of postfire seismic performance of SRC column-RC beam joints

Figure 6. Effect of axial compression ratio on strength

and stiffness.

Figure 7. Effect of concrete strength on bearing capac

ity and stiffness. Figure 8. Effect of profiled steel ratio on strength and stiffness.

Using agent-based simulation approach for estimating the efficiency of the building project design team

Anon, 1999. Simulating project work processes and organizations: Toward a micro-contingency theory of organizational design. Management Science, 45(11), pp. 1479–1495.

Bstieler, L., 2006. Trust Formation in Collaborative New Product Development*. Journal of Product Innovation Management, 23(1), pp. 56–72.

Busi, M. & Bititci, U.S., 2006. Collaborative performance management: present gaps and future research. International Journal of Productivity and Performance Management, 55(1), pp. 7–25.

Easley, R.F., Devaraj, S. & Crant, J.M., 2003. Relating Collaborative Technology Use to Teamwork Quality and Performance: An Empirical Analysis. Journal of Management Information Systems, 19(4), pp. 247–268. Farhangian, M. et al., 2013. Modelling the Effects of Personality and Temperament in Small Teams. In Coordination, Organizations, Institutions, and Norms in Agent Systems IX. Lecture Notes in Computer Science. Cham: Springer International Publishing, pp. 25–41. Fridsma, D.B., 2003. Organizational Simulation of Medical Work: An Information-Processing Approach. Stanford University. Girard, P. & Robin, V., 2006. Analysis of collaboration for project design management. Computers in Industry, 57(8–9), pp. 817–826. Jin, Y. & Levitt, R.E., 1996. The virtual design team: A computational model of project organizations. Computational and Mathematical Organization Theory, 2(3), pp. 171–195. Lahti, H., Seitamaa-Hakkarainen, P. & Hakkarainen, K., 2004. Collaboration patterns in computer supported collaborative designing. Design Studies, 25(4), pp. 351–371. Levitt, R.E., 2012. The Virtual Design Team: Designing Project Organizations as Engineers Design Bridges. Journal of Organization Design, 1(2), pp. 14–41. Sargent, R.G., 2012. Verification and validation of simulation models. 7(1), pp. 12–24. Tsai, M.-H. & Huang, S.-R., 2015. Agent-based Project Team Collaboration Behavior Simulation. In International Conference on Innovation, Communication and Engineering. Xiangtan, Hunan, P.R. China. Xiaorong Xiang et al., 2005. Verification and Validation of Agent-based Scientific Simulation Models. In Agent-Directed Simulation Conference. pp. 47–55.

GAQSIQ. 2008. Method of Daylighting Measurements, GB/T5699-2008. Beijing: Standards Press of China.

HesChong Mahone Group Inc. 2003. Daylighting and Retail Sales[R]. California Energy Commission. Sacremento, CA.

Jiangsu HURD. 2013. A Guide to Green Building Application Technology. Nanjing: Phoenix Science Press.

LBNL. Desktop Radiance. www.radsite.lbl.gov/deskrad/

Liu, X. 2010. Building Physics. Beijing: China Architecture and Building Press.

USGBC. 2009. Leadership in Energy and Environmental Design Reference Guide. US Green Building Council.

Yun, P. 2007. Lighting Environment Simulation of Building. Beijing: China Architecture and Building Press.

Mechanical analysis of rockburst considering the "locked in" stress in the driving face of the roadway

Figure 4. Relation between the angle of the maximum

principal stress and the radius of surrounding rock.

Figure 5. Failure trace line of surrounding rock.

Study on the identification of major safety defects in port engineering

Table 8. List of major safety defect in port engineering.

Type	Major safety defect
Human unsafe behavior	1. Without use of personal protective equipment in aerial work, water operation, etc. 2. Violation of operating procedures or violation in commanding in water and underwater operation, blasting operation, etc. 3. Risk-taking operation, such as working at height when the wind degree is greater than 6
Unsafe physical condition	1. No or improper protective measures 2. Defect of equipment, facilities, accessories, and material 3. No obvious safety warning signs are set up.
Adverse environmental conditions	1. Inadequate lighting in excavation and support of foundation pit, lifting operation, etc. 2. The construction resident set in debris flow area, landslide, etc.
Defects in management	1. Disordered safety management 2. The safety management personnel of the construction unit has not passed the examination 3. Special operations personnel do not obtain the certificate of operation qualification 4. Illegal subcontracting 5. Unauthorized alteration of construction scheme 6. Unreasonable schedule 7. The safety production cost is less than 1.5% of the engineering cost 8. Absent responsibility of safety technical disclosure

Investigating the impact of greenery on the driver's psychology at a freeway tunnel portal

Table 2. Drivers' AHRG indicator when travelling in tunnels.

Tunnel form	Driver	Tunnel length (m)	AHRG (%)
Nongreenery	A	707	9.03
		2722	6.34
	B	1141	4.36
		672	8.05
Unilateral greenery	A	286	7.21
		1182	4.09
	B	1570	3.96
		890	6.61
Bilateral greenery	A	1080	3.18
		751	2.99
	B	724	3.38
		900	3.55

Table 1. Illuminance coefficient of different tunnel forms.

Tunnel form	Luminance outside I_{out} (lx)	Luminance inside I_{in} (lx)	Luminance coefficient ΔI
Nongreenery	7361	2247	511.4
Unilateral greenery	3846	1625	222.1
Bilateral greenery	4023	2400	162.3

Byung C.M, Soon C.C, Se J.P, Chul J.K, Mi-Kyong S, & Kazuyoshi Sakamoto. 2002. Autonomic responses of young passengers contingent to the speed and driving mode of a vehicle. International Journal of Industrial Ergonomics 29:187–198. CIE 88: 2004, Guide for the Lighting of Road Tunnels and Underpasses, International Commission on Illumination, Vienna, Austria. Du Z.G., Pan X.D, & Guo X.B. 2007. Visual adaptation index for driving safety at entrance and exit of highway tunnel. Journal of South China University of Technology (Natural Science Edition) 35(7):15–19. Du Z.G, Huang F.M, Yan X.P, & Pan X.D. 2013. Light and dark adaption time based on pupil area variation at entrance andexit Areas of highway tunnel. Journal of Highway and Transportation Research and Development 30(5):98–102. Du Z.G, Pan X.D, Yang Z, & Guo X.B. 2007. Research on visual turbulence and driving safety of freeway tunnel entrance and exit. China Journal of Highway and Transport 20(5):101–105. Flexibility in Highway Design. 2000. Washington D.C., USA: Federal Highway Administration (FHWA). Groeger J.A, & Rothengatter J.A. 1998. Trafficpsychology and behavior. Transportation Research Part F1:1–9. JTJ 026. 2000. 1-1999 Specifications for Design of Ventilation and Lighting of Highway Tunnel. Beijing: People’s Education Press. Kircher K, & Ahlstrom C. 2012. The impact of tunnel design and lighting on the performance of attentive and visually distracted drivers. Accident Analysis and Prevention 47:153–161. Ma Z.L, Xu C.F, & Zhang S.R. 2009. Characteristics of traffic accidents in Chinese freeway tunnels. Tunnelling and Underground Space Technology 24:350–355. Pan X.D, Gotou Jun’ichi, & Makoto Y. 2001. Studies on Evaluation of forest roadssurface by driver’s psychological and physiological responses. Applied Forest Science 10(2):27–30. Raymond H, Hoogendoorn S.P, Brookhuis K, & Daamen W. 2010. Mental Workload, Longitudinal Driving Behavior, and Adequacy of Car-Following Models for Incidents in Other Driving Lane. Transportation Research Record 2010:64–73. The Roadside Design Guide. 1996. Washington D.C., USA: American Association of State Highway and Transportation Officials (AASHTO). Wang Y.Z. Guo Y, & Liao Z.G. 2010. Safety analysis for illumination design at tunnel entrance and exit. Inproceedings of the international conference on intelligent computation technology and automation (ICICTA ’10) 3:255–259. Xiao D.Q. 2011. Study on optimization of freeway greening engineering based on three objectives [PhD Thesis]. Changan: Changan University. Zhao W.H, Chen H, Yu Q, Liu H.X, & Wang W.H. 2012. Study on optimization of night illumination in expressway long tunnels. Discrete Dynamics in Nature and Society 2012 November: 1–9. Zhang Q, & Chen Y.R. 2005. Analysis of relations between planting and safety of high-type highways. Highway 2005(11):202–207.

Modeling two-dimensional rubble mound breakwater using dolos at armor layer and geotube at the core layer

Table 6. Rundown at the mean high water level.

Format of slope	Rundown, R_d (cm)
1:1.5	14.5
1:2	17.0
1:2.5	22.0

Table 7. Wave transmission coefficient at the water level 70 cm.

Slope	H_t (cm)	H_i (cm)	K_t
1:1.5	13.1	15.5	0.85
1:2.0	9.0	16.2	0.56
1:2.5	8.3	15.7	0.53

Shear stress calculation of rubber asphalt overlay and stress-absorbing layer

Department of Transportation Highway Science Research Institute. Thin Layer Asphalt Concrete Surface Layer Technology Research [R]. Beijing: 2004.

Guan Chang Yu, Wang Zheren, Guo Dazhi. Study on the Bonding State of Pavement Structure Layer [J]. Chinese Journal of Highway, 1989, 2(1): 70-80.

Huang Xiaoming, Liao Gongyun. Application of ABAQUS Finite element software in road engineering [M]. Nanjing: Southeast University press, 2008.

Ruymbeke E. van, Keunings R., V. Stephenne. Determination of the Molecular Weight Distribution of Entangled Linear Polymers from Linear Viscoelasticity Data. Journal Non Newtonian Fluid Mwch. 2002.

The Ministry of transport of the people’s communist country. Specifications for design of highway asphalt pavement (JTG D50-2006). Beijing; People’s Communication Press, 2006.

Thomas Bennert, Ali Masher, and Joseph Smith. Evaluation of Crumb Rubber in Hot Mix Asphalt. Final Report[R]. Department of Civil and Environmental Ehgineering, Rutgers University. 2004.

Experimental study on beam-column joints of new prefabricate assembly frame structures

Cai Jian, Zhou Qing, Fang Xiaodan. Study on Seismic Dis placement Ductility Factor of Reinforced Concrete Frame Structure [J]. Earthquake Resistant Engineering and Retrofitting, 2005, 27(3): 2–6 (in Chinese).

CECS43:92. Design specification for joints and connections of precast monolithic reinforced concrete frames [S]. 1992, 11 (in Chinese). Zhang Jichao, Chen Jiefeng, XuYong, et al. Discussion of the new prefabricate assembly integral frame structure technology [J]. Building Structure, 2013, 43(s1):1357-03 (in Chinese). GB 50011-2010. Code for design of buildings [S]. Beijing: China Architecture & Building Press, 2010, 8. Li Zhenbao, Dong Tingfeng, YanWeiming, et al. Study on Seismic Performances of Hybrid Precast Concrete Beam-to-column Connections [J]. Journal of Beijing University of Technology, (2006), 32(10):898–900 (in Chinese). Luo Qinger, Wang Yun, Weng Yuhui, et al. Experimental study of beam-column joint of precast monolithic R.C. Frame [J]. Industrial Construction, 2009, 39(2): 80–83 (in Chinese). Mansour M, Lcc J, Hsu T. Cyclic stress-strain curves of concrete and steel bars in membrane elements [J]. Journal of Structural Engineering, 2001, 127(12): 1402–1411. STMERB, Specification of testing methods for earthquake resistant building[S]. Beijing: China Architecture & Building Press, 1997 (in Chinese). Xu Yidong, Wang Qiwen, Chen Yunxia. Research on limiting value of axial compression ratio ductility brhavior of RC square column [J]. Journal of Building Structures, 2012, 33(6):103–109 (in Chinese). Yan Weiming, Wang Wenming, Chen Shicai, et al. Experimental study of the seismic behavior of precast con crete layered slab and beam to column exterior joints [J]. China Civil Engineering Journal, 2010, 43(12):56–61. Zhao Bin, Lu Xilin, Liu Haifeng. Experimental study on seismic behavior of precast concrete beam-column subassemblage with cast-in-situ monolithic joint [J]. Journal of Building Structures, 2004, 25(6):22–28 (in Chinese). Zhao Bin, Lü Xilin, Liu Lizhen. Experimental study on seismic behavior of precast concrete beam-column sub-assemblage with fully assembled joint [J]. Earthquake Engineering and Engineering Vibration, 2005, 25(1):81–87(in Chinese).

Seismic analysis of large span spatial steel frame with isolation system

Shen Zuyan, Hunag Kuisheng, Chen Yiyi, Tong Jun (2006). “Shaking Table Test Model with Steel BracedFrame Structure About Main Plant of Large Thermal Power Plant”. Journal of Architecture and Civil Engineering. 23(4):1–5.

Skinner RI, RobinsonWH, McVerry GH (1993). “An Introduction to Seismic Isolation”. John Wiley & Sons Ltd.

Su Jingyu, Zeng Demin (2001). “Research and Application of Seismic Isolation System for Civil Engineering Structures in China”. Earthquake Engineering and Engineering Vibration, 21(4):94–101.

Vojko Kilar, David Koren (2009). “Seismic behaviour of asymmetric base isolated structures with various distributions of isolators”. Engineering Structures, 31 (4): 910–921. Xilin Lu, Yin Zou, Wensheng Lu (2007). “Shaking table model test on Shanghai World Financial Center Tower”. Earthquake Engng Struct. Dyn. 36:439–457. Zhou Fulin, Zhang Jichao (2005). “Guangdong science center isolation and energy dissipation structure model to simulate an earthquake shake table test study (ST-0501-189)”. Guangzhou: Earthquake Engineering Research & Test Center of Guangzhou University.

Effect of material ingredients on the cement-based self-leveling material

Dong Sufen. Study on Preparation and properties of cement based self-leveling mortar [D]. Chongqing University, 2009.

Gao Shujuan, Liu Wenbin. Preparation of cement based self-leveling mortar [J]. Sichuan building materials, 2013, v.39; No. 17606: 47–48.

Gu Jun. Application of poly carboxylic acid series water reducing agent in cement based self leveling [C]. 2008. Production and application of third (China) International Building dry mixed mortar technology conference proceedings, 277–280. Huang Tianyong, Chen Xufeng, Zhang Yinxiang, Yan Peiyu. The mechanism of Cement based self leveling mortar [J]. Portland bulletin, 2015, V.34; No.22910:2864–2869. Ren Zeng zhou. Preparation and application of high performance cement based self-leveling mortar [D]. Chongqing University, 2010. The article, Zhong Chao Ming, et al. Research on size change rate of CAC based self leveling mortar [J]. concrete, 2013 (6): 97–99.

Iojă C.I., Rozylowicz L., Pătroescu M., Niţă M.R., Vânau G.O. (2011) Dog walkers’ vs. other park visitors’ perceptions: The importance of planning sustainable urban parks in Bucharest, Romania. Landscape and Urban Planning 103 (1):74–82.

Mathew T. (1989) MANOVA in the multivariate components of variance model. Journal of Multivariate Analysis 29 (1):30–38.

Meitner MJ (2004) Scenic beauty of river views in the Grand Canyon: relating perceptual judgments to locations. Landscape and Urban Planning 68 (1):3–13.

Pettebone D, Newman P, Lawson SR, Hunt L, Monz C, Zwiefka J (2011) Estimating visitors’ travel mode choices along the Bear Lake Road in Rocky Mountain National Park. Journal of Transport Geography 19 (6):1210–1221.

von Essen L.M., Ferse S.C.A., Glaser M., Kunzmann A. (2013) Attitudes and perceptions of villagers toward community-based mariculture in Minahasa, North Sulawesi, Indonesia. Ocean & Coastal Management 73:101–112

Yamashita S (2002) Perception and evaluation of water in landscape: use of Photo-Projective Method to compare child and adult residents’ perceptions of a Japanese river environment. Landscape and Urban Planning 62 (1):3–17.

Yao Y, Zhu X, Xu Y, Yang H, Wu X, Li Y, Zhang Y (2012) Assessing the visual quality of green landscaping in rural residential areas: the case of Changzhou, China. Environ Monit Assess 184 (2):951–967.

Froeschle, L.M. (1999). Environmental Assessment and Specification of Green Building Materials. Salt Lake City: The Construction Specifier.

Jacobs, J. (2006). The death and life of great American cities. Jiangsu: Yilin Press.

Spiegel, R. & Meadows, D. (1999). Green Building Materials: A Guide to Product Selection and Specification. New York: John Wiley & Sons Inc.

Xiaolei, G. (2010). Research on Construction and dismantling and material recycle technology. Tianjin: Tianjin University.

Xudong, W. (2011). Protection and Development of Ancient Villages in Shaanxi Province from “Organic Renewal”. Xi’an: Xi’an building university of science and technology.

Yigang, P. (2010). Theory of Architectural Space Combination. Beijing: China Building Industry Press.

Research on safety management of construction projects based on game theory

Blair, E.H. 1996. Achieving a Total Safety Paradigm through Authentic Caring and Quality Professional Safety. J. Journal of American Society of Safety Engineers 6: 18-20.

Ngowi, A.B. & Rewlamila, P.D. 1997. Holistic Approach to Occupational Health and Safety and Environmental Impacts. In: Haup, Theo C, Rwelamila P.D, eds. Proceedings of Health and Safety in Construction: Current and Future Challenges. J. Pentech: Cape Town 8: 20-29. Tu, P.H. 2004. Game analysis on safety management of engineering construction project. Journal of wuhan university of science and engineering 17(8):90-91. Wang, J.M. & Feng, Y.H. 2007. The application of game theory in the safety management of construction project. Shaanxi Coal 26(5): 74-75. Wang, J. & Cai, Y.Q. 2015. Analysis and construction for threshold signature scheme based on game theory. Journal on Communications 26(5): 74-75. Wang, X.Y. 2013. Research on quality supervision of construction project based on Evolutionary Game Theory. Project Management Technology 36(5): 1-8. Zhang, F.L. & Liu, l. 2002. The Application of Game Theory In Project Safety Management. Systems Engineering 20(6): 33-37.

Prestress distribution calculation method of a ridge tube cable dome with annular struts

Bao, H.Z. 2007. The theoretical and experimental research of bird-nest cable dome. Doctoral dissertation, Zhejiang University. Dong, S.L., Wang, Z.H. & Yuan, X.F. 2009. A simplified calculation method for initial prestress of levy cable domes with the consideration of self-weight. Engineering Mechanics, 26(4), 1–6. Dong. S.L., Wang, Z.H. & Yuan, X.F. 2010. Static behavior analysis of a space structure combined of cable dome and single-layer lattice shell. Journal of Building Structures. 31(03): 1–8. Dong, Z.L., He, G.Q. & Lin, C.Z. 1995. Finding of equilibrium states of tensegrity systems. Journal of Building Structures, 20(05): 24–28. Geiger, D.H., Stefaniuk, A. & Chen, D. 1986. The design and construction of two cable domes for the Korean Olympics. Shells, Membranes and Space Frame, Proceedings IASS Symposium. Madrid, Spain: IASS. 265–272. Ge, J.Q., Zhang, A.L., Liu, X.G., Zhang, G.J., Ye, X.B., Wang, S. & Liu, X.C. 2012. Analysis of tension formfinding and whole loading process simulation of cable dome structure. Journal of Building Structures. 33(04):1–11. Levy, M.P. 1994. The Georgia dome and beyond achieving lightweight-long span structures. Proceedings of IASSASCE International Symposium. Madrid, Spain: IASS. 560–562. Li, Z.Q. 2007. Behavior analysis and system improvement of cable domes. Doctoral dissertation, Zhejiang University. Liu, X.C., Zhang, A.L., Liu, Y.J., Ge, J.Q. & Zhang, G.J.2012. Experimental research and performance analysis of new-type cable-strut joint of large-span cable dome structure. Journal of Building Structures.33(04):46–53. Lu, C.L., Zhang, A.L. & Zhang, G.J. 2005. The development and deepening of the study on prestressed steel structures. Progress in Steel Building Structures, 8(2):41–48. Lu, J.Y., Wu, X.L., Zhao, X.L. & Shu, G.P. 2015. Form finding analysis of cable-strut tensile dome based on tensegrity torus. Engineering Mechanics. S1:66–71. Pellegrino, S.1993. Structural computations with the singular value decomposition of the equilibrium matrix. International Journal of Solids and Structures. 30(21): 3025–3035. Wang, Z. H., Yuan, X.F. & Dong, S.L. 2010. Simple approach for force finding analysis of circular geiger domes with consideration of self-weight. Journal of Constructional Steel Research, 66(02), 317–322. Yuan, X.F. & Dong, S.L. 2001. Application of integrity feasible prestressing to tensegrity cable domes. China civil engineering journal. 34(02): 33–37. Yuan, X.F. & Dong, S.L. 2005. New forms and initial prestress calculation of cable domes. Engineering

Mechanics. 22(02):22-26. Zhang, B.K. & Liu, W.C. 2010. Design and analysis of hybridized self-balance prestressed latticed structure composed of shell and cable dome. Journal of Shenyang Jianzhu University (Natural Science). 26(03):452-457. Zhang, A.L., Liu, X.C., Li. J. Ge, J.Q. & Zhang, G.J. 2012. Static experimental study on large-span cable dome structure. Journal of Building Structures.33(04):54-59. Zhang, G.J., Ge, J.Q., Wang, S., Zhang, A.L., Wang, W.S., Wang, M.Z. & Xu, K.R. 2012. Design and research on cable dome structural system of the National Fitness Center in Ejin Horo Banner, Inner Mongolia. Journal of Building Structures. 33(04):12-22.

Zhang J., C.F. Wan and Tadanobu Sato (2013). Advanced Markov Chain Monte Carlo Approach for Finite Element Calibration under Uncertainty. Computer-Aided Civil and Infrastructure Engineering, Vol. 28.

Zhao W.T., Z.P. Qiu (2013). An efficient response surface method and its application to structural reliability and reliability-based optimization. Finite Elements in Analysis and Design, Vol. 67. Zong Z.H., M.L. Gao, Z.H. Xia (2011). Finite element model validation of the continuous rigid frame bridge based on structural health monitoring Part 1: FE model updating based on the response surface method. China Civil Engineering Journal, Vol. 44, No. 2.

Promotion of transportation on urban spatial distribution and industrial development in Beijing

Adelheid Holl. Twenty Years of Accessibility Improvements: The Case of the Spanish Motorway Building Programme. Journal of Transport Geography, 2007, 15(4):286–297. Deng X, Huang J, Rozelle S, et al. Growth, Population, Industrialization and Urban Land Expansion of China. Journal of Urban Economics, 2008, 63(1):96–115. Kim, T.J., Rho, J.H., Suh, S., 1989. Integrated Urban Systems Modeling: Theory and Applications. Kluwer Academic Publishers, Dordrecht, The Netherlands. Li Shi-ming. Politic, Economy, Culture: The Triple Impetus Variation of Chinese Urban Development. Modern Urban Research, 2006(6):23–29. Southworth, F., 1995. A Technical Review of Urban Land Use-Transportation Models as Tools for Evaluating Vehicle Reduction Strategies, Research Report ORNL-6881, OakRidge National Laboratory, OakRidge, TN. Wegner, M., Fuurst, F., 1999. Landuse transport interaction: state of the art. Deliverable of the project TRANSLAND of the 4th RTD Framework Programme of the European Commission. Yang Shao-hui, Ma Lin, Chen Sha. Urban and Urban Transportation: Development Courses and Interactions. Urban Transport of China, 2009, 7(4):1–6. Yang Shao-hui, Ma Lin, Chen Sha. Interaction of Spatial Structure Evolution and Urban Transportation. Urban Transport of China, 2009, 7(5):45–48.

Selection of interruptive protection methods in rapid transit underground construction

Figure 3. Excavated driftwood.

Table 8. CB420 priority weights for alternatives.

A	Weights	D1	D2	D3	D4	D5
B1	17.1%	0.166	0.207	0.207	0.071	0.349
B2	13.9%	0.117	0.211	0.118	0.190	0.364
B3	12.9%	0.165	0.430	0.168	0.067	0.170
B4	10.4%	0.148	0.324	0.202	0.084	0.242
B5	4.39%	0.199	0.261	0.275	0.094	0.172
B6	3.24%	0.302	0.184	0.174	0.126	0.214
B7	3.14%	0.163	0.116	0.218	0.147	0.356
B8	3.33%	0.226	0.207	0.137	0.112	0.318
B9	6.63%	0.387	0.230	0.111	0.112	0.160
B10	3.63%	0.220	0.243	0.193	0.140	0.204
B11	5.34%	0.289	0.189	0.152	0.128	0.242
B12	7.8%	0.366	0.122	0.119	0.087	0.307
B13	8.3%	0.259	0.197	0.204	0.112	0.228
Priority weights		0.211	0.246	0.177	0.12	0.27
Rank		3	2	4	5	1

for general shield tunnel construction. Also, in order to minimize the amount of settlement, the distance between the inbound and outbound tun nels had been increased to reduce the magnifying settlement effect of two tunnels being too close together. The analytic shield tunneling section is shown in Fig. 2(b). In addition to design, to satisfy the stringent control values, the interruptive pro tection method has to be used to control the settle ment caused by shield tunneling excavation. It was decided to use the grouting method. After having conducted questionnaire on Level 4 for CB420, the relative weights of alternatives with respect to the 16 sub-criteria were obtained. Table 8 shows how to use the relative weights in Level 3 and Level 4 to determine the priority weights for the alternatives. The grouting method (D1) with a weight of 0.27 was perceived to be the best alternative for interruptive protection.

Damage mechanism and dynamic analysis of tunnel lining structures under internal blast loading

Bischoff, P.H. & Perry, S.H. Compressive behaviour of concrete at high strain rates. Materials and Structures, Materiaux et Constructions 24:425–450 (1991).

Carreira, D.J. & Chu, K. Stress strain relationship for reinforced concrete in tension. ACI Journal, JanuaryFebuary 83(3):21–28 (1986).

Chakraborty, T. & Larcher, M. & Gebbeken, N. Comparative performance of tunnel lining materials under blast loading. 3rd International Conference on Computational Methods in Tunnelling and Subsurface Engineering, Ruhr University Bochum (2013).

Chille, F. & Sala, A. & Casadei, F. Containment of blast phenomena in underground electrical power plants. Advances in Engineering Software 29:7–12 (1998).

Choi, S. & Wang, J. & Munfakh, G. & Dwyre, E. 3D nonlinear blast model analysis for underground structures. Geo Congress 2006 ASCE:1–6 (2006).

Du, H. & Li, Z. Numerical analysis of dynamic behaviour of rc slabs under blast loading. Trans. Tianjin University 15:061–064 (2009).

Feldgun, V.R. & Kochetkov, A.V. & Karinski, Y.S. & Yankelevsky, D.Z. Internal blast loading in a buried lined tunnel. International Journal of Impact Engineering 35:172–183 (2008).

Goel, M.D. & Matsagar, V.A. & Gupta, A.K. & Marburg, S. An abridged review of blast wave parameters. Defence Science Journal 62:300–306 (2012). Goel, M.D. & Matsagar, V.A. & Gupta, A.K. Dynamic response of stiffened plates under air blast. International Journal of Protective Structures 2:139–155 (2011). Gui, M.W. & Chien, M.C. Blast resistant analysis for a tunnel passing beneath Taipei Shongsan airport—a parametric study. Geotechnical and Geological Engineering 24:227–248 (2006). Higgins, W. & Chakraborty, T. & Basu, D. A high strainrate constitutive model for sand and its application in finite element analysis of tunnels subjected to blast. International Journal for Numerical and Analytical Methods in Geo mechanics 37:2590–2610 (2012). Horsham. Autodyn Theory manual [J]. UK: Century Dynamics Ltd, 2003. Li, Z.X. & Liu, Y. & Tian, L. Dynamic

Response and Blast-resistance Analysis of Double Track Subway Tunnel Subjected to Blast Loading within One Side of Tunnel [J]. Journal of Beijing University of Technology 32(2):173–181 (2006). Liu, H. Dynamic analysis of subway structures under blast loading. Geotechnical and Geological Engineering 27:699–711 (2009). Lu, Y. Underground blast induced ground shock and its modelling using artificial neural network. Computers and Geotechnics 32:164–178 (2005). Lubliner, J. & Oliver, J. & Oller, S. & Onate, E.A. Plastic damage model for concrete. International Journal of Solids and Structures 25:299–329 (1989). Ngo, T. & Mendis, P. Modelling reinforced concrete structures subjected to impulsive loading using concrete lattice model. Electronic Journal of Structural Engineering 8:80–89 (2008). TM5-1300 Structures to resist the effects of accidental explosions. US Departments of the Army and Navy and the Air Force (1990). Veyera, G.E. & Ross, C.A. High strain rate testing of unsaturated sands using a split-hopkinson pressure bar. 3rd International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics 1.11 (1995). Welch, C.R. In-tunnel air blast engineering model for internal and external detonations[C]//Proceedings of the 8th International Symposium on Interaction of the Effects of Munitions with Structures. 195–208 (1997). Zukas, J.A. & Walters, W.P. Explosive effects and applications. Springer-Verlag New York, (2003).

The seismic responses of near-fault frame structure cluster on basin induced by the rupture of reverse fault

Boutin, C. & Roussillon, P. 2004. Assessment of the urbanization effect on seismic response. Bulletin of the Seismological Society of America 94(1): 251–268.

Boutin, C. & Roussillon, P. 2006. Wave propagation in presence of oscillators on the free surface. International Journal of Engineering Science 44: 180–204.

Day, S.M. Graves, R.W. Bielak, J. Dreger, D. Larsen, S. Olsen, K.B. Pitark, A. Ramirez-Guzman, L. 2008. Model for basin effects on long-period response spectra in Southern California. Earthquake Spectra 24(1): 257–277.

Graves, R.W. Pitarka, A. & Somerville P.G. 1998. Ground-motion amplification in the Santa Monica area: effects of shallow basin-edge structure. Bulletin of the Seismological Society of America 88(5): 1224–1242.

Graves, R.W. 2008. The seismic response of the San Bernardino basin region during the 2001 Big Bear Lake earthquake. Bulletin of the Seismological Society of America 98: 241–252.

Graves, R.W. & Wald, D.J. 2004. Observed and simulated ground motions in the San Bernardino basin region for the Hector Mine, California, earthquake. Bulletin of the Seismological Society of America 94: 131–146.

Groby, J.P. Tsogka, C. & Wirgin, A. 2005. Simulation of seismic response in a city-like environment. Soil Dynamics and Earthquake Engineering 25(7–10): 487–504.

Groby, J.P. & Wirgin, A. 2008. Seismic motion in urban sites consisting of blocks in welded contact with a soft layer overlying a hard half-space. Geophysical Journal International 172(2): 725–758.

Guéguen, P. Bard, P.Y. Chávez-García, F. 2002. Site-city seismic interaction in Mexico city-like environments: an analytical study. Bulletin of the Seismological Society of America 92(2): 794–811.

Guidotti, R. Mazzieri, I. Stupazzini, M. Dagna P. 2012. 3D numerical simulation of the site-city Interaction during the 22 February 2011 M W 6.2 Christchurch earthquake. Electronic proceedings of the 15th World Conference of

Earthquake Engineering, 15th WCEE, 24–28. Portugal: Lisbon.

Isbiliroglu, Y. Taborda, R. & Bielak, J. 2015. Coupled soil-structure interaction effects of building clusters during earthquakes. Earthquake Spectra 31(1): 463–500.

Kham, M. Semblat, JF. Bard, PY. & Dangla, P. 2006. Seismic site-city interaction: main governing phenomena through simplified numerical models. Bulletin of the Seismological Society of America 96(5): 1934–1951. Liu, T. Luan, Y. Zhong, W. 2012. Earthquake responses of clusters of building structures caused by a nearfield thrust fault. Soil Dynamics and Earthquake Engineering 42: 56–70. Liu, T. & Zhong, W. 2014. Earthquake responses of nearfault frame structure clusters due to thrust fault by using flexural wave method and viscoelastic model of earth medium. Soil Dynamics and Earthquake Engineering 61–62: 57–62. Lombaert, G. & Clouteau, D. 2006. Resonant multiple wave scattering in the seismic response of a city. Waves in Random and Complex Media 16: 205–230. Lombaert, G. & Clouteau, D. 2009. Elastodynamic wave scattering by finite-sized resonant scatters at the surface of a horizontally layered halfspace Journal of the Acoustic Society of America 125: 2041–2052. Morales, J., Singh, S.K. & Ordaz, M. 1996. Analysis of the Granada (Spain) earthquake of 24 June, 1984 (M = 5) with emphasis on seismic hazard in the Granada basin. Tectonophysics 257: 253–263. Pitarka, A. & Irikura K. 1996. Basin structure effects on long-period strong motions in the San Fernando valley and the Los Angeles basin from the 1994 Northridge earthquake and an aftershock. Bulletin of the Seismological Society of America 86(1B): S126–S137. Semblat, J.F. Kham, M. Guéguen, P. Bard, P.Y. & Duval, A.M. 2002. Site-city interaction through modifications of site effects. On 7th U.S. Conference on Earthquake Engineering. Boston. Semblat, J.F. Kham, M. Bard, P.Y. & Guéguen, P. 2004. Could “site-city interaction” modify site effects in urban areas? In Proceedings of the 13th World Conference on Earthquake Engineering, Canadian Association for Earthquake Engineering, Ed., Vancouver, British Columbia, Canada, August 2004. International Association for Earthquake Engineering, Paper 1978. Semblat, J.F. Kham, M. Bard, P.Y. 2008. Seismic-wave propagation in alluvial basins and influence of sitecity interaction. Bulletin of the Seismological Society of America 98(6): 2665–2678. Tsogka, C. & Wirgin, A. 2003a. Simulation of seismic response in an idealized city. Soil Dynamics and Earthquake Engineering 23: 391–402. Tsogka, C. & Wirgin, A. 2003b. Seismic response of a set of blocks partially imbedded in soft soil. Comptes Rendus Mecanique 331(3): 217–224. Uenishi, K. 2010. The Town Effect: Dynamic Interaction between a Group of Structures and Waves in the Ground. Rock Mechanics and Rock Engineering 43(6): 811–819. Uenishi, K. 2013. “Unexpected” failure patterns and dynamic collective behaviour of an assembly of buildings subjected to horizontal impact. Engineering Failure Analysis 35: 125–132. Wirgin, A. & Bard P.Y. 1996. Effects of buildings on the duration and amplitude of ground motion in Mexico city. Bulletin of the Seismological Society of America 86(3): 914–920. Zhong, W. & Liu, T. 2016. Application of an investigated lump method to the simulation of ground motion for Beichuan town during the Wenchuan earthquake. Journal of Earthquake and Tsunami 10(1): 1650002-1-1650002-14.

Wave propagation FEA and experimental validation of aluminum plate using piezoelectric elements

Cao, Zheng Min. 2008. Plotting and Experimental Validation of Lamb wave Dispersion Curve. PTCA 44(9): 482-484.

Liu, Zhen Qing. 1999. Ultrasonic Lamb Waves in Nondestructive Testing. NDT 21(9): 409-413.

Wang, Du. & Zheng, Xiang Ming. 2007. Experimental Study for Nondestructive Testing of Steel Sheet by Lamb Waves. NDT 29(4): 193-196.

Xu, Ye Dong. 2015. Research on Lamb Wave Excited by Flanging Piezoelectric Wafer. Journal of Applied Acoustics 34(6): 547-553.

Yan, Shi. & Zhang, Hai Feng & Meng, Yan Yu. 2010. Numerical Calculation and Experimental Validation for Lamb Wave Dispersion Curves. J. HUST 27(1): 1-4.

Yan, Shi. Zhao, Naizhi. Wanf Qiujing and Song, Gangbing. 2013. Dynamic Mechanical Model of Surfacebonded PZT Actuator: Theory and Experiment[J]. Applied Mechanics and Materials, 303-306: 1732-1735.

Numerical simulation on seismic behavior of subway station structure under near-fault ground motions

Chen, G.X., L. Chen, L.P. Jing, & H. Long (2011). Comparison of implicit and explicit finite element methods with parallel computing for seismic response analysis of metro underground structures. Journal of the China Railway Society. 33(11), 111–117 (in Chinese).

Chen, G.X., S. Chen, X. Zuo, X.L. Du, C.Z. Qi, & Z.H. Wang (2015). Shaking-table tests and numerical simulations on a subway structure in soft soil. Soil Dynamics and Earthquake Engineering. 76, 13–28.

Chen, L., G.X. Chen, & L.M. Li (2010). Seismic response characteristics of the double-layer vertical overlapping metro tunnels under near-field and far-field Ground Motions. China Railway Science, 31(1), 79–86.

Corigliano, M. (2007). Seismic response of deep tunnels in near-fault conditions. PhD dissertation. Politecnico di Torino, Italy, p. 222.

Corigliano, M., L.Scandella, C.G. Lai, & R. Paolucci (2011). Seismic analysis of deep tunnels in near fault conditions: a case study in Southern Italy. Bulletin of Earthquake Engineering. 9(4), 975–995.

Cunha, A., E. Caetano, P. Ribeiro, & G. Müller (2014). Effects of Near-Fault Ground Motions on the Seismic Response of Concrete Gravity Dams. Proceedings of the 9th International Conference on Structural Dynamics. Porto, Portugal, 30 June–2 July, Paper No. 305–310.

Davoodi, M., J M.K. afari, & N. Hadiani (2013). Seismic response of embankment dams under near-fault and far-field ground motion excitation. Engineering Geology. 158, 66–76.

Kalkan, E. & S.K. Kunnath (2006). Effects of fling step and forward directivity on seismic response of buildings. Earthquake spectra. 22(2), 367–390.

Lee, J. & G.L. Fenves (1998). Plastic-damage model for cyclic loading of concrete structures. Journal of engineering mechanics. 124(8), 892–900.

Li, S. & L.L. Xie (2007). Progress and trend on nearfield problems in civil engineering. Acta Seismologica Sinica. 20 (1), 105–114. Liao, Z.P. (2013). Introduction to wave motion theories in en—gineering. Beijing: Science Press. Martin, P.P. & H.B. Seed (1982). One-dimensional dynamic ground response analyses. Journal of the geotechnical engineering division. 108(7), 935–952. Mavroeidis, G.P. & A.S. Papageorgiou (2003). A mathematical representation of near-fault ground motions. Bulletin of the Seismological Society of America. 93(3), 1099–1131. National Standard of the People’s Republic of China (2010). GB50011-2010 Code for seismic design of buildings. Beijing: China Architecture & Building Press. PEER NGA Database. Pacific Earthquake Engineering Research Center, University of California at Berkeley. Samata, S., H. Ohuchi, & T. Matsuda (1997). A study of the damage of subway structures during the 1995 Hanshin-Awaji earthquake. Cement and Concrete Composites. 19(3), 223–239. Tao, L.J., W.P. Wang, B. Zhang, Q.H. Wang & Y.J. Wei (2011). Effects of rupture forward directivity and fling step of near-fault ground motions on dynamic responses of representative subway station structure. Journal of Earthquake Engineering and Engineering Vibration. 31(6), 38–44. Zhao, W.S. & W.Z. Chen (2015). 1558. Effect of nearfault ground motions with long-period pulses on the tunnel. Journal of Vibroengineering. 17(2), 841–858. Zhuang, H.Y., Z.H. Hu, & G.X. Chen (2015). 1555. Numerical modeling on the seismic responses of a large underground structure in soft ground. Journal of Vibroengineering. 17(2), 802–815. Zhuang, H.Y., Z.H. Hu, X.J. Wang, & G.X. Chen (2015). Seismic responses of a large underground structure in liquefied soils by FEM numerical modelling. Bulletin of Earthquake Engineering. 13(12), 3645–3668.

Finite—infinite element analysis of soil dynamic response under moving load

Andersen, L. S.R.K. Nielsen. Reduction of ground vibration by means of barriers or soil improvement along a railway track [J]. Soil Dynamics and earthquake Engineering, 2005, 25: 701—716

Degrande G, Lombaert G. High-speed train induced free field vibrations: in situ measurements and numerical modeling [A]. Wave 2000 [C], 2000, 29—42.

Degrande G, Schillemans L. Free field vibrations during the passage of a Thalys high-speed train at variable speed [J]. Sound and vibration, 2001, 247(1): 131—144.

Xia He, et al. Traffic-induced vibrations and their influeces on surrounding environments [A]. MCCI'2000[C]. Beijing, 2000, 123—130

Yang, Y.B., and Hung, H.H. (2009). Wave Propagation for Train-Induced Vibrations—A Finite/Infinite Element Approach. Singapore, World Scientific.

Yuan L, Liu H, Men Y. Research advances in the interaction among stratum-ground fissure-tunnel under subway dynamic loading [C]. Shanghai, China: Trans Tech Publications, 2012.

Yuan Liqun, Liu Nina and Yang Mi. Soil Pressure Analysis of Subway Tunnel Across Ground Fissures[J]. Advances in Engineering Research, 2016, 65:73—76

Evaluation of the processing suitability of rural domestic sewage treatment, taking Fangshan in Beijing as a case study

Table 5. AHP judgment matrix.

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	1	5/6	5/7	5/7	5/7	5/6	5/8	5/7	5/7	5/8	5/8	5/8	5/6
B	6/5	1	6/7	6/7	6/7	1	3/4	6/7	6/7	3/4	3/4	3/4	1
C	7/5	7/6	1	1	1	7/6	7/8	1	1	7/8	7/8	7/6	7/6
D	7/5	7/6	1	1	1	7/6	7/8	1	1	7/8	7/8	7/8	7/6
E	7/5	7/6	1	1	1	7/6	7/8	1	1	7/8	7/8	7/8	7/6
F	6/5	1	6/7	6/7	6/7	1	3/4	6/7	6/7	3/4	3/4	3/4	1
G	8/5	4/3	8/7	8/7	8/7	4/3	1	8/7	8/7	1	1	1	4/3
H	7/5	7/6	1	1	1	7/6	7/8	1	1	7/8	7/8	7/8	7/6
I	7/5	7/6	1	1	1	7/6	7/8	1	1	7/8	7/8	7/8	7/6
J	8/5	4/3	8/7	8/7	8/7	4/3	1	8/7	8/7	1	1	1	4/3
K	8/5	4/3	8/7	8/7	8/7	4/3	1	8/7	8/7	1	1	1	4/3
L	8/5	4/3	8/7	8/7	8/7	4/3	1	8/7	8/7	1	1	1	4/3
M	6/5	4/3	6/7	6/7	6/7	1	3/4	6/7	6/7	3/4	3/4	3/4	1

Table 6. Evaluation results by AHP.

Station	Process	Score of AHP
HSY	MVCW	7.4
SMT	CW	7.0
HTP	PCW	6.9
NH	MBR	6.5
MEG	MBR	6.2
LMT	SABF	5.7

Table 7. Comparison of the results of AHP and EWFM.

Station (process)	Score of AHP	EAD × 10
HSY (MVCW)	7.4	7.0
NH (MBR)	6.5	6.3
HTP (PCW)	6.9	5.8
SMT (CW)	7.0	5.6

MEG (MBR) 6.2 5.1 LMT (SABF) 5.7 4.6

Hao Rui-xia et al. Comprehensive Evaluation and Analysis on the Operation of Wastewater Treatment Plant Based on Matter-element Model Combined With Entropy Weight [J]. Journals of Beijing University of Technology. 2013(3):445-451.

Hou Jing-wei et al. Review about Characteristics of Rural Domestic Wastewater Discharge [J]. Journal of Anhui Agri. Sci. 2012, 40(2): 964-967.

Liang Hanwen et al. Investigation and analysis of rural wastewater discharge characteristics in three typical areas of China [J]. Chinese Journal of Environmental Engineering. 2011, 9(5):2054-2059.

Li Jicheng, L iHongcheng, Zhang Xiance et al, Overview on Investing and Constructing Post Project Evaluation Methods and Development Progress [J]. TUHA OIL& GAS, 2007, 12(1): 86-91. Li Juan. Discussion on status and technology of sewage treatment during the “Twelfth Five-Year Plan” [J]. Shanxi Architecture. 2012.12, 38(34):156-157. Li Jun. An Appraisal of Beiiing’ Tourism Environmental Carrying Capacity and Its Potentiality [D]. Capital University of Economics and Business. 2007. Wang Baoxue. Discussion on the Domestic Sewage Treatment Technology for rural Areas of China [J]. Hydropower and New Energy. 2015, 3:67-69. Wang Shou-zhong, Zhang Tong. Characteristics and Prevention Countermeasures of Chinese Rural Water Pollution [J]. China Water & Waste-water. 2008, 9(24): 1-4.

Influence analysis of the incremental launching of steel box girder and local stability control

Guo, Qingfeng & Wei, Min & Qi, Liang (2009). Local stability analysis of steel box girder of Liede bridge in incremental launching process. Sichuan architecture, 29(4):202-203.

Li, Chuanxi & Zou, guisheng. 2006. Local stability calculation methods review for axial compression steel box girder. Journal of China & Foreign Highway, 26(3):129-133.

Li, Lifeng & Shao, Xudong (2007). Model Test on Local Stability of Flat Steel Box Girder. China Journal of Highway and Transport, 20(3):60-65.

Liu, gang (2011). Local stability comparison of seismic provisions between chinese and american standard. Steel Construction, 26(114):42-45.

Qin, Lin & Chen, Jinfen (2013). Study of incremental launching schemes for closure of Beipanjiang River bridge. China Civil engineering Journal, 41(3):43-46. Rosignoli Macro. 1995. Prestressing schemes for incrementally launched bridges. Journal of Bridge Engineering, 5(2):107~115. Shi, Gang & Lin, Cuocuo (2012). Experimental study on local buckling of high square box section stub columns under Axial Strength Steel Compression. Industrial Construction, 42(1):18-25. Yang, Huxiang & Chen, Xianglin (2003). The maturation of the incremental launching technology of prestress concrete continuous bridge. Highway, 3(3):10~13. Zhang, Xiaodong (2003). The incremental launching technology of bridge. Highway, 9(0): 45~51. Zhang, Yupiny & Yuan, Peng (2014). Analysis on Local Stability and Strength of Steel Box Girder in Construction Process of Jiaxing Shaoxing Bridge. Journal of Highway and Transportation Research and development, 31(2):47-53.

Study on active strategies for thermal environment regulation in the zero-energy houses of Solar Decathlon, China

Figure 5. Result of temperature and humidity test of

“O-House” on August 5, 2013.

Research and enlightening of ecological infrastructure-oriented “multiple planning integration” based on Germany’s spatial order and structure planning—illustrated by the example of Dujiangyan

Christoph Riegel. Infrastructure resilience through regional spatial planning prospects of a new legal principle in Germany[J]. Int. J. Critical Infrastructures, 2014, 10(1):17-21.

Integrated Reform Plan for Promoting Ecological Progress[Z]. The Communist Party of China (CPC) Central Committee and the State Council, 2005.

Liang Mao. Study on rural ecological infrastructure in western Liao Ning province from the perspective of ecological productive land[D]. Harbin: Harbin Institute of Technology, 2012.

Min Xie, Lijun Zhang. Explanation of the ideas of German Spatial Planning[J]. Land and Resources Information, 2011, (7):9-12.

Turowski, Gerd. Spatial planning in Germany: Structures and concepts, Akademie für Raumforschung und Landesplanung[M]. Hannover: Akademie für Raumforschung und Landesplanung (ARL), 2002.

Homogeneous generalized yield function and limit analysis of structures with rectangular sections

Figure 4. Three-story spatial frame.

Figure 5. Iterative process of limit load.

be obtained after a few times of iterative analysis,

whereas the results of the GYF-based EMRM

show that application of the original GYF will

result in variability of results with different initial

load and iteration steps.

The results of this example verified that the

HGYF-based EMRM is a promising limit analysis

method for overcoming the nonhomogeneity prob

lem that existed in EMAPs.

Table 3. Limit load of spatial frame structure (kN).

EPIA EMRM Original GYF f 4th power HYGF f 4 P 0 = 1 P 0 = 5 P 0 = 20 P 0 = 1 P 0 = 5 P 0 = 20

50.97 57.88 53.56 47.88 50.54 50.54 50.54

to reduce at different levels until it becomes stable.
The monitoring sections of the moment, both the maximum positive moment and maximum negative moment, withstood by the same ring showed the trend of symmetrical change, which was consistent with the “ellipse” deformation trend of the segment. After the shield passed the sections in the right line, the bending moments of the monitoring sections were increased at varying degrees. As could be seen from the comparison between the maximum bend ing moments of the segments in Table 4, the change of bending moment of the segment was also related with the distance between the left and right tunnels, namely the smaller the clearance between the left and right lines, the greater change of the bending moment withstood by the segment.

5 CONCLUSIONS

In the case of construction of an immediately adjacent shield in Beijing, in this paper, the influ ence of shield construction on the immediately adjacent tunnel is analyzed through establishing a 3D nonlinear elastic-plasticity numerical model of the construction of immediately adjacent shield tunnels. The calculation result shows that:

1. In the light of the analyses of four indexes, namely the stress variation of the segment lining, the deformation law of the ground around the tunnel, deformation of the segment itself, and the variation law of the bending moment of segment lining reflect the sensitive degree of the clearance between the left and right tunnels at different levels. Because the segment itself has a higher rigidity, the deformation development of the segment itself is less influenced by the existing tunnels. The process of tunnel excavating has certain hysteresis effect on the influence of immediately adjacent left existing tunnel.

2. The stress growth rate of the adjacent segments caused by the tunnel excavating is basically linearly descending related to the situation of tunnel space.

3. The ground settlement form caused by the construction of double-line tunnel is similar to that caused by the single-tunnel construction due to

Table 4. Statistical comparison of maximum bending moment of segment lining in different monitoring sections.

		No. 1140	No. 1186	No. 1219	No. 1255	No. 1287
M x (kN · m)	Sagging moment	32.12	36.23	37.57	39.92	39.90
	Hogging moment	-29.91	-31.15	-33.35	-36.27	-37.31
M y (kN · m)	Sagging moment	6.70	7.40	8.73	9.76	10.15
	Hogging moment	-8.96	-8.87	-8.81	-9.09	-10.88

Development and validation of the effective stress algorithm of the Davidenkov constitutive model using the Byrne pore pressure increment model

Byrne P M. A cyclic shear-volume coupling and pore pressure model for sand [C]. Mssouri, USA: 1991:47-56.

Chen Guo-xing, Chen Lei, Jing Li-pin. Comparision of implicit and explicit finite element methods with parallel computing for seismic response analysis of metro underground structures[J]. Journal of the China Railway Society, 2011, 33(11): 111-118.

Chen Guo-xing, Zhuang Hai-yang. Developed nonlinear dynamic constitutive relations of soils based on Davidenkov skeleton curve[J]. Chinese Journal of Geotechnical Engineering, 2005, 27(08): 860-864.

Chen Guo-xing. Geotechnical Earthquake Engineering [M]. Beijing:science press,2007.

Finn W D L, Lee K W, Martin G R. An effective stress model for liquefaction[J]. Journal of the Geotechnical Engineering Division, ASCE, 1977, 103(6): 517-533.

Liyanathirana D S, Poulos H G. Numerical simulation of soil liquefaction due to earthquake loading[J]. Soil Dynamics and Earthquake Engineering, 2002, 22(7): 511-523.

Martin G B, Finn W D L, Seed H B. Fundamentals of liquefaction under cyclic loading[J]. Journal of Geotechnical Engineering, ASCE, 1975, 101(5): 423-438.

Martin P P, Seed H B. One-dimensional dynamic ground response analyses[J]. Journal of the Geotechnical Engineering Division, ASCE, 1982, 108(7): 935-952.

Pyke R M. Nonlinear soil models for irregular cyclic loadings[J]. Journal of Geotechnical Engineering, ASCE, 1979, 105(6): 715-726.

Rong Mian-shui, Li Hong-guang, LI Xiao-jun. Applicability of Davidenkov model for soft soils in sea areas[J]. Chinese Journal of Geotechnical Engineering, 2013, 35(S2): 596-600.

Seed H B, Martin G R, Lysmer J. Pore-Water pressure changes during soil liquefaction [J]. Journal of the Geotechnical Engineering Division, ASCE, 1976, 102(4):

323-346.

Seed H B, Martin G R, Lysmer J. The generation and dissipation of pore water pressures during soil liquefaction[R]. earthquake engineering research center, university of california, berkeley, 1975.

Tokimatsu K, Seed H B. Evaluation of settlements in sands duo to earthquake shaking[J]. Journal of Geochemical Engineering, ASCE, 1987, 113(8): 861–878.

Wang Bing-hui, Chen Guo-xing. Pore water pressure increment model for saturated Nanjing fine sand subjected to cyclic loading[J]. Chinese Journal of Geotechnical Engineering, 2011, 33(02): 188–194.

Zhang J, Andrus R D, Juang C H. Normalized shear modulus and material damping ratio relationships[J]. Journal of Geotechnical and Geoenvironmental Engineering, 2005, 131(4): 453–464.

Zhuang H, Hu Z, Wang X, et al. Seismic responses of a large underground structure in liquefied soils by FEM numerical modelling[J]. Bulletin of Earthquake Engineering, 2015, doi:10.1007/s10518-015-9790-6.

Urban ITS framework and essential parts of the ITS frame structure

Figure 4. Application of urban ITS framework.

Figure 3. Module cluster analysis interface.

Parameter optimization of space truss and aerospace load viscoelastic damping composite structure

mum in position 3. In order to analyse the reasons, the modal strain energy distribution is investigated. at first. According to the results of modal analysis, in the first ten orders modes, the vibration mode of the space load box is in the order of eighth to tenth. The modal strain energy distribution of the three order is listed. It can be concluded from the variation law of damping factor at different position of con strained damping layer and position diagram of modal strain energy: The greater the modal strain energy is, the greater the damping factor is. The reason is that the constrained damping layer is applied to the position where the modal strain energy is larger, and the shear deformation of the damping layer is large in the course of the vibra tion of the structure, the energy consumption is large, the damping factor of the structure is big, the resonance response peak is small, and the effect of vibration reduction is good. Therefore, the posi tion where the modal strain energy is larger should be chosen to paste constrained damping layer in the optimization process.

6 CONCLUSION

1. When the thickness of the constrained layer is constant, the thickness of the damping layer is in the range of 0.25 mm–2.5 mm, with the increase of the thickness of the damping layer, the damping factor increases.

2. When the thickness of the damping layer is constant, the thickness of the constrained layer is in the range of 0.5 mm–3 mm, and damping factor increases first and then decreases with the increase of the thickness of the constrained layer.

3. The shear modulus of the damping layer gradually increased from 0.25 MPa to 15 MPa. The damping factor of the structure is related to the strain energy of the damping layer, and the strain energy is proportional to the stiffness and

A unified theory of thermodynamically consistent microplane elastoplastic damage, and elastoplastic damage models

Figure 3. Comparison of strength envelop with biaxial

compressive test by Kupfer et al. (1969).

Preparation of sebacic acid by a phenol-free method

Figure 2. FT-IR spectrum of purification of sebacic

acid at 553 K.

Figure 3. FT-IR spectra of crude sebacic acid with dif

ferent alkali concentration. a: 7 mol/L, b: 14 mol/L.

Effects of electrospinning parameters on the pore structure of porous nanofibers

Dai Y.Q., W.Y. Liu, E. Formo, Y.M. Sun, Y.N. Xia, Polym. Adv. Technol., 22, 7, 326-338(2011).

Panthi G., M. Park, H.Y. Kim, S.Y. Lee, S.J. Park, Ind. Eng. Chem., 21, 26-35(2015).

Rowe M.J., Kamocki K., Pankajakshan D.J. Biomed. Mater. Res. 104, 3(2015).

Weihong Xu, Renzhe Shen, Yurong Yan, J. Serb. Chem. Soc, 65, (2016).

Zhang H., Q. Niu, N.T. Wang, Eur. Polym. 71, 440-450(2015).

Zhang Y., R. Shi, P. Yang. Ceram. Int, 42, 12, 14028-14035(2016).

Zhaoyang Sun, Chenxu Fan, Xiaopeng Tang. Appl. Surf. Sci, 387, 828-838(2016).

Preparation of orderly nanofibers using bubble-electrospinning

Dai Y.Q., W.Y. Liu, E. Formo, Y.M. Sun, Y.N. Xia, Polym. Adv. Technol. 22, 7, 326–338 (2011).

Goh Y.F., I. Shakir, R. Hussain, J. Mater. Sci. 48, 3027–3054 (2013). Heidari I., M.M. Mashhadi, G. Faraji, Chem. Phys. Lett. 590, 231–234 (2013). He J.-X., K. Qi, Y.-M. Zhou, S.-Z. Cui, Polym. Int. 63(1), 288–294 (2014). Jianghui Zhao, Hongying Liu, lanXu, Mater.Des. 90, 1–6 (2016). Kaur S., D. Rana, T. Matsuura, S. Sundarrajan, S. Ramakrishna, J. Membr. Sci. 390, 235–242 (2012). Mehrasa M., M.A. Asadollahi, K. Ghaedi, H. Salehi, A. Arpanaei, Int. J. Biol. Macromol. 79, 687–695 (2015). Terao T., C.Y. Zhi, Y. Bando, M. Mitome, C.C. Tang, D. Golberg, J. Phys. Chem. C 114, 4340–4344 (2010). Zhang Q.C., L.H. Wang, Z.M. Wei, X.J. Wang, S.R. Long, J. Yang, J. Polym. Sci. Pol. Phys. 50, 1004–1012 (2012). Zhongbiao Shao, Therm. Sci. (to be published).

Environmental radioactivity measure and dose estimation of Sr in some area

GB 14882-1994. The standards for the limiting concentrations of radioactive substances in the food [S].

Haijun Wang, Yifang Yang, Yongjie Lu. Application of thermoluminescent in the investigation of the environmental gamma radiation levels in the [J] Navy Medical Journal, 27(2), pp. 110-112, 2006.

Maoxiang Zhu. health effects and the promotion measures of radionuclide [J]. Canceration distortion mutation, 23(6), pp. 468-472, 2011.

Sichang Qin, Zhengping Fan, Chengxiang Lei, etal. Study on the method of radioactive background in environmental media [J]. Navy Journal of medicine, 27(1), pp. 8-10, 2006.

UNSCEAR 2000 [R]. Ionizing radiation sources and its effects [M]. Taiyuan: Shanxi Science and Technology Press. pp. 27, 2002.

Yongjie Lu, Zhengping Fan, Yifang Yang, etal. Preparation and implementation of the background investigation on environmental gamma radiation [J]. Navy Medical Journal, 27(1), pp. 5-8, 2006.

Yongmei Xie, Zhenming Zhuang, Yongzhong Song. Investigation on environmental electromagnetic radiation level in suburban counties of Nanjing city [J]. Chin radiation health, 18(4), pp. 461-462, 2009.

Ziqiang Pan. Monitoring and evaluation of ionizing radiation environment [M]. Beijing: Atomic Energy Press. pp. 54, 2007.

Effect of humic acid on the adsorption of levofloxacin to goethite

Table 1. Three-dimensional fluorescence characteristics of HA, LEV, and their mixtures.

System	Peak 1 (λ em /λ ex)	Intensity	Peak 2 (λ em /λ ex)	Intensity	Peak 3 (λ em /λ ex)	Intensity	Peak 4 (λ em /λ ex)	Intensity
HA (pH 3.0)	220/330	1016	325/490	469.4	290/495	1272	ND a	ND
HA (pH 6.0)	225/335	828.4	325/465	203.4	285/485	533.7	ND	ND
HA (pH 9.0)	220/325	977.5	330/450	272.4	280/445	604.0	ND	ND
LEV (pH 3.0)	ND	ND	325/490	4297	290/495	9999.9 b	230/500	4980
LEV (pH 6.0)	ND	ND	330/470	4226	290/480	9999.9	230/495	4224
LEV (pH 9.0)	ND	ND	330/455	5065	290/465	9999.9	255/450	6154
LEV-HA (pH 3.0)	225/325	1221	325/495	3805	290/495	9999.9	225/485	4378
LEV-HA (pH 6.0)	225/325	1120	330/480	3372	290/490	9427	225/490	3615
LEV-HA (pH 9.0)	225/330	1124	330/465	4230	285/470	9999.9	225/480	4108

a ND means not detected, or no peaks are found.

b The value exceeds the detection limit of the fluorescence spectrophotometer.
of drug carrier and dissolved humic acid. Sci. Total Environ. 438: 66–71. Qin X., Liu F. & Wang G., 2012. Fractionation and kinetic processes of humic acid upon adsorption on colloidal hematite in aqueous solution with phosphate. Chem. Eng. J. 209, 458–463. Qin X., Liu F., Wang G., Li L., Wang Y. & Weng L., 2014b. Modeling of levofloxacin adsorption to goethite and the competition with phosphate. Chemosphere 111, 283–290. Qin X., Liu F., Wang G., Weng L. & Li L., 2014a. Adsorption of levofloxacin onto goethite: effects of pH, calcium and phosphate. Colloids Surf. B. 116:591-596. Tolls J., 2001. Sorption of veterinary pharmaceuticals in soils: a review. Environ. Sci. Technol. 35(17), 3397–3406 Weng L., Koopal L.K., Hiemstra T., Meeussen J.C.L. & Van Riemsdijk W.H., 2005. Interactions of calcium and fulvic acid at the

goethite-water interface. Geochim. Cosmochim. Acta 69(2), 325–339. Yan W., Hu S. & Jing C., 2012. Enrofloxacin sorption on smectite clays: effects of pH, cations, and humic acid. J. Colloid Interface Sci. 372(1), 141–147. Zhang J. & Dong Y., 2008. Effect of low-molecularweight organic acids on the adsorption of norfloxacin in typical variable charge soils of China. J. Hazard. Mater. 151(2–3), 833–839. Zhang Q., Zhao L., Dong Y. & Huang G., 2012. Sorption of norfloxacin onto humic acid extracted from weathered coal. J. Environ. Manage. 102, 165–172. Zhang Y., Xie J., Liu M., Tian Z., He Z., van Nostrand J.D., Ren L., Zhou J. & Yang M., 2013. Microbial community functional structure in response to antibiotics in pharmaceutical wastewater treatment systems. Water Res. 47(16), 6298–6308. Zhao Y., Geng J., Wang X., Gu X. & Gao S., 2011. Adsorption of tetracycline onto goethite in the presence of metal cations and humic substances. J. Colloid Interface Sci. 361(1), 247–251.

Calcium and manganese affect ethanol fermentation by Pichia stipitis in cadmium-containing medium by inhibiting cadmium uptake

Table 1. Effects of Cd on XR and XDH activities. Relative enzyme activities (%) XR XDH

	Relative enzyme activities (%) XR	XDH
Without Cd	100	100
With Cd	76.22 ± 3.78	32.81 ± 2.21

APHA, AWWA, & WEF (2005). Standard Methods for examination of water and wastewater, 21st ed. Washington DC.

Bao, Y., L. Zhan, C.X. Wang, Y.L. Wang, W.M. Qiao, & L.C. Ling (2011). Carbon foams used as packing media in a biological aerated filter system. Mater. Lett. 65 3154–3156.

Han, S., Q. Yue, & M. Yue (2009). Effect of sludge-fly ash ceramic particles (SFCP) on synthetic wastewater treatment in an A/O combined biological aerated filter. Bioresource Technol. 100, 1149–1155.

Kent, T., C. Fizpatrick, & S. Williams, (1996). Testing of biological aerated filter (BAF) media, Water Sci. Technol. 34, 363–370.

Mendosa-Espinosa, L., & T. Stephenson (1998). A process model to evaluate the performance of a biological aerated filter, Biotechnology Terbniqzrar 12, 373–375.

Ohashi, A., D.G. Virai de Silva, B. Mobarry, J.A. Manem, D.A. Stahl, & B.E. Rittmann (1995). Influence of substrate C/N ratio on the structure of multi-species biofilms consisting of nitrifiers and heterotrophs, Water Sci. Technol. 32, 75–84.

Osorio, F., & E. Hontoria (2001). Optimization of bed material height in a submerged biological aerated filter, J. Environ. Eng. 127, 974–978.

Pujol, R., H. Leemel, & M. Gousailles (1998). A keypoint of nitrification in an upflow biofiltration reactor, Water Sci. Technol. 38, 43–49.

Qiu, L.P., S.B. Zhang, G.W. Wang, & M.A. Du (2010). Performances and nitrification properties of biological aerated filters with zeolite, ceramic particle and carbonate media. Bioresource Technol. 101 7245–7251.

Ryu, H.D., D. Kim, H.E. Lim, & S.I. Lee (2008). Nitrogen removal from low carbon-to nitrogen wastewater in four-stage biological aerated filter system, Process Biochem. 43, 729–735.

Shen, J.Y., R. He, & H.X. Yu (2009). Biodegradation of 2, 4, 6,-trinitrophenol (picric acid) in a biological aerated filter (BAF), Bioresource Technol. 100, 1922–1930.

Preparation and evaluation of the Ni-Al catalyst derived from LDHs synthesized on γ-Al O support

Bhattacharyya A, Chang V W, Schumacher D J. (1998). CO 2 , reforming of methane to syngas: I: evaluation of hydrotalcite clay-derived catalysts. Applied Clay Science. 13, 317–328. Feely R A, Doney S C. (2011). Ocean Acidification: The Other CO 2 Problem. Aslo Web Lectures. 3, 1–59. Han J W, Kim C, Park J S, et al. (2014). Highly CokeResistant Ni Nanoparticle Catalysts with Minimal Sintering in Dry Reforming of Methane. Chemsuschem. 7, 451–456. Khan S B, Khan S A, Asiri A M. (2016). A fascinating combination of Co, Ni and Al nanomaterial for oxygen evolution reaction. Applied Surface Science. 370, 445–451. Liu C, Gu Q, Ye J, et al. (2016). Perspective on catalyst investigation for CO 2 conversion and related issues. CIESC Journal. 67, 6–13. Long H, Xu Y, Zhang X, et al. (2013). Ni-Co/Mg-Al catalyst derived from hydrotalcite-like compound prepared by plasma for dry reforming of methane. Journal of Energy Chemistry. 22, 733–739. Manukyan K V, Cross A J, Yeghishyan A V, et al. (2015). Highly Stable Ni-Al 2 O 3 Catalyst Prepared from a Ni-Al Layered Double Hydroxide for Ethanol Decomposition toward Hydrogen. Applied Catalysis A General. 508, 37–44. Montañez M K, Molina R, Moreno S. (2014). Nickel catalysts obtained from hydrotalcites by coprecipitation and urea hydrolysis for hydrogen production. International Journal of Hydrogen Energy. 39, 8225–8237. Mikulová Z, Čuba, P, Balabánová J, et al. (2007). Calcined Ni-Al layered double hydroxide as a catalyst for total oxidation of volatile organic compounds: Effect of precursor crystallinity. Chemical Papers. 61, 103–109. Qi T, Reddy B J, He H, et al. (2008). Synthesis and infrared spectroscopic characterization of selected layered double hydroxides containing divalent Ni and Co. Materials Chemistry & Physics. 112, 869–875. Rezende S M D, Franchini C A, Dieuzeide M L, et al. (2015). Glycerol steam reforming over layered double hydroxide-supported Pt catalysts. Chemical Engineering Journal. 272, 108–118. Romero A, Jobbágy M, Laborde M, et al. (2014). Ni(II)Mg(II)-Al(III) catalysts for hydrogen production from ethanol steam reforming: Influence of the Mg content. Catalysis Today. 470, 398–404. Saidi K, Hammami S. (2015). The impact of CO 2 , emissions and economic growth on energy consumption in 58 countries. Energy Reports. 1, 62–70. Takehira K, Shishido T, Peng W, et al. (2004). Autothermal reforming of CH 4 over supported Ni catalysts prepared from Mg-Al hydrotalcite-like anionic clay. Journal of Catalysis. 221, 43–54. Wang G, Chen X, Zhang Z, et al. (2015). Influencing

Factors of Energy-Related CO 2 Emissions in China: A Decomposition Analysis. Sustainability. 7, 14408–14426. Zhao Q, Chang Z, Lei X, et al. (2011). Adsorption Behavior of Thiophene from Aqueous Solution on Carbonate—and Dodecylsulfate-Intercalated ZnAl Layered Double Hydroxides. Industrial & Engineering Chemistry Research. 50, 10253–10258. Zhang F, Li M, Yang L, et al. (2014). Ni-Mg-Mn-Fe-O catalyst derived from layered double hydroxide for hydrogen production by auto-thermal reforming of ethanol. Catalysis Communications. 43, 6–10.

Figure 4. FT-IR spectra of catalyst precursor.

Synthesis and hydrodesulfurization performance of NiMo sulfide catalysts supported on an Al-Si mixed oxide

Figure 5. SEM images of NiMoS/Al_2O_3-SiO_2 and

NiMoS/γ-Al_2O_3 catalysts, C1(a) and C2(b). Table 2. The activity evaluation results of FCC diesel on NiMoS/Al_2O_3-SiO_2 and NiMoS/γ-Al_2O_3 catalysts. Catalyst Sample S content, μg/g N content, μg/g Density, g/ml FCC diesel 2483 1040 0.9263 C1 330˚C 122.5 50.3 0.8960 350˚C 42.8 13.1 0.9111 360˚C 15.2 9.3 0.8902 C2 330˚C 138.4 69.1 0.8966 350˚C 51.3 23.2 0.9114 360˚C 22.5 13.6 0.8906

Study on solidification of Ningbo mucky soil

Aslan, N. [J]. Powder Technology, 2008, 185(1): 80-86.

Chang S., Xu R., Li X., Liao B., Wang X. [J]. Rock and Soil Mechanics, 2014, 01:105-110.

Chen H., Wang Q. [J]. Chinese Journal of Rock Mechanics and Engineering, 2005, 24(s2): 5816-5821.

Feng Z., Zhu W., et al. [J]. Chinese Journal of Rock Mechanics and Engineering, 2007, 26(s1): 3052-3057.

Huang Y., Zhu W, Zhou X. et al. [J]. Rock and Soil Mechanics, 2012, 33(2): 2923-2928.

Jacob J. Sauer, et al. T. [J]. Journal of Geotechnical and Geoenvironmental Engineering, 2012, 138(8): 968-980.

Li X., Xu R., Rong X. Journal of Central South University. 2012. 19: 2999-3005.

Paulo J. Venda O., et al. [J]. Journal of Geotechnical and Geoenvironmental Engineering, 2013, 139(5): 810-820.

Ragonese R, Macka M, et al. (2002) J. Pharm. Biomed. Anal. 27: 995-1007

Tang Y., Liu H. [J]. Chinese Journal of Geotechnical Engineering, 2000, 22(5): 549-554.

Wang D., Xu W. [J]. Rock and Soil Mechanics, 2012, 33(12): 3659-3664.

Ann K.Y., Song H. W (2007). Chloride threshold level for corrosion of steel in concrete. Corrosion Science. 49, 4113-4133.

Ann K.Y., Jung H.S., Kim S.S., et al (2009). Effect of calcium nitrite-based corrosion inhibitor in preventing corrosion of embedded steel in concrete. Cement and Concrete Research. 36, 530-535.

Erhan G., Mehmet G (2008). A study on durability properties of high-performance concretes incorporating high replacement levels of slag. Materials and Structures. 41, 479-493. Feng N.Q., Xing F (2009). Concrete and durability of concrete structure. Beijing: China Machine Press. Hüseyin Y., Halit Y., Serdar A (2007). Effects of cement type, water/cement ratio and cement content on sea water resistance of concrete. Building and Environment. 42, 1770-1776. Kyong Y.Y., Eun K.K (2005). An experimental study on corrosion resistance of concrete with ground granulate blast-furnace slag. Cement and Concrete Research. 35, 1391-1399. Li Y.X (2003). Study on composition, structure and properties of cement and concrete with steel-making slag powder mineral additive, China Building Materials Academy. Song H.W., Velu S (2006). Studies on the corrosion resistance of reinforced steel in concrete with ground granulated blast-furnace slag-An overview. Journal of Hazardous Materials B. 138, 226-233. Zheng K.R., Sun W., Jia Y.T., et al (2005). Effects of slag dosage on hydration products and pore structure of cement paste at high water to binder ratio. Journal of the Chinese Ceramic Society. 33, 520-524.

Experimental study of the drainage and consolidation characteristics of tailings discharge and accumulation by gradual height rising under the action of drainage material

Du Chang-xue (2006). Study of Physical Mechanics Property and Solidified Technology of Bauxite Mine Slime. D. Central South University. Hann E M & Miils S V, et al (2013). Refining estimates of foundation settlements due to consolidation of finegrained tailings deposits. C. Geotechnical and Geophysical Site Characterization 4-Proceedings of the 4th International Conference on Site Characterization 4,2: 1707–1714. Li Jie-quan & Ou Xiao-duo, et al (2012). An experimental study on self-weight consolidation of the red mud tailings placed in karst regions. J. Journal of Guangxi University, 37(1):152–159. Ofori P & AV Nguyen, et al (2011). Shear-induced flock structure changes for enhanced dewatering of coal preparation plant tailings. J. Chemical Engineering Journal, 172(2): 914–923. Ou Xiao-duo & Liao You-fang, et al (2014). Large-strain consolidation calculation model on both horizontal and vertical drainage of wet filling tailings. J. Advances in Science and Technology of Water Resources, 34(5): 28–34. Shamsai A & Pak A (2007). Geotechnical characteristics of copper mine tailings: a case study. J. Geotechnical and Geological Engineering, 2007, 25(5): 591–602. Suits LD & TC Sheahan, et al (2010). Laboratory Study of Soft Soil Improvement using Lime Mortar (Well Graded) Soil Columns. J. Geotechnical Testing Journal, 33(3): 225–235. Wei Ru-long (1993). Derivation for coefficient of consolidation from settlement observation. J. Chinese Jounal of Geotechnical Engineering, 15(2): 12–19. Wickland B E & Wilson G W (2010). Hydraulic conductivity and consolidation response of mixtures of mine waste rock and tailings. J. Canadian Geotechnical Journal, 47(4): 472–485. Yin Guang-zhi & Zhang Qian-gui, et al (2011). Experimental study of nonlinear characteristics of deformation evolution for meso-scopic structure of tailings. J. Chinese Journal of Rock Mechanics and Engineering, 30(8):1604–1612. Zhang Nan & Zhu Wei (2013). Study of sedimentation and consolidation of soil particles in dredged slurry. J. Rock and Soil Mechanics, 34(6): 1681–1686.

LQR control of across-wind responses of tall buildings using composite tuned mass dampers

Figure 9. Across-wind responses with CTMD

(μ_{AP} = 0.1, rms = 0.0033 m).

Figure 10. Across-wind responses with CTMD

(μ_{AP} = 0.3, rms = 0.0037 m).

Figure 11. Across-wind responses with CTMD (μ_{AP} =

0.5, rms = 0.0040 m).

Figure 8. Across-wind responses with CTMD

(μ_{AP} = 0.05, rms = 0.0035 m). Nishimra, I. Sakamoto, M. Yamada, T. Koshika, N. & Kobori, T. 1994. Acceleration feedback method applied to active—passive composite tuned mass damper. Journal of Structural Control 1(1-2): 103–116. Nishimra, I. Yamada, T. Sakamoto, M. & Kobori, T. 1998. Control performance of active-passive composite tuned mass damper. Journal of Smart Materials & Structures 7(5): 637–753. Ormondroyd, J. & Den Hartog, J.P. 1928. The theory of the dynamic vibration absorber, Transactions of ASME, Vol.50 (APM-50-7): 9–22. Ricciardelli, F. Pizzimenti, A.D. & Mattei, M. Passive and active mass damper control of the response of tall buildings to wind gustiness. 2003. Journal of Engineering Structures. 25: 1199–1209. Shinozuka, M. 1987. Stochastic fields and their digital simulation, edited by Schueller, G.I. & Shinozuka, M. Martinus Nijhoff Publishers, Stochastic Methods in Structural Dynamics 93–133. Solari, G. 1993. Gust buffeting, Journal of Structural Engineering, ASCE 119(2): 383–398. Suhardjo, J. Spencer, B.F. & Kareem, A. 1992. Active control of wind-excited buildings: A frequency domain based design approach. Journal of Wind Engineering and Industrial Aerodynamics, 41-44:1985–1996. Wang, C.M. Yan, N. & Balendra, T. 1999. Control on dynamic structural response using active-passive composite-tuned mass dampers. Journal of Vibration and Control 5: 475–489 Warburton, G.B. 1981. Optimum absorber parameters for minimizing vibration response, Earthquake Engineering and Structural Dynamics 9: 251–262 Warburton, G.B. 1982. Optimum absorber parameters for various combinations of response and excitation parameters, Earthquake Engineering and Structural Dynamics 10: 381–401. Yang, J.N, Lin, S. & Jabbari, F. 2003. H 2 -based control strategies for civil engineering structures, Journal of Structural Control 10: 205-230. Yang, J.N. Lin, S. J.H.Kim. & Agrawal, A.K. 2002. Optimal design of passive energy dissipation systems based on H and H 2 performances, Journal of Earthquake Engineering and Structural Dynamics 31: 921-936. Yao, J.T.P. 1972. Concept of structural control, Journal of SD, ASCE 98: 1567-1574.

Time-dependent reliability analysis of steel fiber-reinforced concrete beams under sustained loads

Ding, F. & Yu, Z. 2004. Unified calculation method for tensile properties of concrete. Journal of Huazhong University of Science and Technology (City Science Edition) 21 (3) : 29–35. (in Chinese)

Dong, Z. & Niu, D. 2006, 38 (2) : 204–209, Liu Xifang. Method for calculating the time of initiation of reinforcement in the general atmosphere. Journal of Xi'an University Of Architecture And Technology (Natural Science Edition), 2006, 38 (2) : 204–209. (in Chinese).

Emilia, V., Francesco, M. & Maria, A.A. 2013. Long term behavior of FRC flexural beams under sustained load. Engineering Structures 56 (6): 1858–1867. Goitseone, M., Pilate, M. & Mark, A. 2009. Behaviour of RC beams corroded under sustained service loads. Construction and Building Materials 23(4): 3346–3351. Hui, Y.B., Brian, U, Sameera, W.P. 2015. Time- dependent behaviour of composite beams with blind bolts under sustained loads. Journal of Constructional Steel Research 112 (3): 196–207. Jin, C. 2013. Serviceability reliability analysis of prestressed concrete bridges. KSCE Journal of Civil Engineering 17(2): 415–425. Lee, H, John, P.F. & Anne, N. 2013. Behaviour of cracked reinforced concrete beams under repeated and sustained load types. Engineering Structures 56(3): 457–465. Ma, Y.S. & Wang Y.F. 2015. Creep influence on structural dynamic reliability. Engineering Structures 99(5): 1–8. Saeed, M. & Ehsan, V. 2011. Time-dependent reliability analysis of B70 pre-stressed concrete sleeper subject to deterioration. Engineering Failure Analysis 18(1): 421–432. Tan, K.H. & Saha, M.K. 2005. Ten-Year Study on Steel Fiber-Reinforced Concrete Beams Under Sustained Loads. ACI Structural Journal 102 (3) : 472–480. Technical specification for fiber reinforced concrete structures[S]. (CECS38-2004). China Planning Press. 2004, 11. (in Chinese). Zheng, Y., Liu, M. & Shen X.. 2009. Calculating models of time-dependent reliability for existing reinforced concrete beam. Journal of Traffic and Transportation Engineering 9 (2) : 45–49. (in Chinese).

Research on the heat transfer characteristics of rock and soil under the effects of vertical double U-type buried-pipe heat exchanger

Ball D A, Fischer R D & Hodgett D L (1983). Design methods for ground-source heat pumps. J. ASHRAE Transactions, 89(2): 416–440.

Chen Ying, Yang Mei & Shi Baoxing (2009).Experi-mental investigation on soil temperature restorat-ive characteristics for soil source heat pump in intermittent cooling operation. J. ACTA Energiae Solaris Sinica, 30(10): 1193–1197.

Hu Yingning, Lin Jun & Yin Xiangming (2009).Study on heat exchange performance of ground exchangers in the water-rich soil areas. J. ACTA Energiae Solaris Sinica, 30(1): 5–11.

Michel A B (2001). Ground-coupled heat pump system simulation. J. ASHRAE Transactions, 107(1): 605–616.

Michel A B (2002). Uncertainty in the design length calculation or vertical ground heat exchangers. J. ASHRAE Transactions, 108(1): 939–943.

Michel P (2001). A simplified tool for assessing the feasibility of ground-source heat pump projects. J. ASHRAE Transactions, 107(1): 120–129. Sutton M G, Nutter D W, Couvillion R J (2003). A ground resistance for vertical bore heat exchangers with groundwater flow [J]. Journal of Energy Resources Technology, 125(3): 183–189. Wang Tie-hang, Li Ning & Xie Ding-yi (2005). Necessity and means in research on soil coupled heat-moisturestress issues. J. Rock and Soil Mechanics. (3): 488–493. Wei Wang (2010). The ExPeriments Researeh on Thermal Conductivity of Frozen soil. D. Jilin University. Yan Ren (2010). Performance characteristic analysis and experimental study of moderate buried double-U tube ground-source heat pump system. D. Beijing University of technology. Yavuzturk C & Chiasson A D (2002). Performance analysis of U-tube, concentric tube, and standing column well ground heat exchangers using a system simulation approach. J. ASHRAE Transactions, 108(1): 925–938. Yavuzturk C & Spitler J D (2001). Field validation of a short time step model for vertical ground-loop heat exchangers. J. ASHRAE Transactions, 107(1): 617–625. Yingchun Tang & Xiaoduo Ou & Baotian Wang (2011). Experimental Study on the Heat Transfer in Rock Layers with the Vertical Downhole Heat

Exchanger. Advanced Materials Research. C. Vols. 168-170:2243-2248. Yu Zhongyi (2008). Research on Heat Transfer Characteristic of Vertical Ground Heat Exchangers in Ground Source Heat Pump Systems. D. Huazhong University of Science & Technology. Zhang Guozhu, XIA Caichu1 & MA Xuguang, et al (2012). Rock-soil thermal response test of tunnel heating system using heat pump in cold region. J. Chinese Journal of Rock Mechanics and Engineering. (1): 99-105.

Nitrogen removal performance of ANAMMOX-PVA granules immobilized by different preparation methods

Figure 4. SEM images of the granule's section.

a) × 200; b) × 5000; c) × 10000.

Seismic response of a long-span cable-stayed bridge with slip-shear metal damper

Apaydın N.M (2010). Earthquake performance assessment and retrofit investigations of two suspension bridges in Istanbu. Soil Dynamics and Earthquake Engineering, 30: 702–710. Corte G.D., M. D'Aniello & R. Landolfo (2013). Analytical and numerical study of plastic overstrength of shear links. Journal of Constructional Steel Research, 82: 19–32. Gang Li & Li Hongnan (2006). Study on vibration reduction of structure with a new type of mild metallic dampers. Journal of Vibration and Shock, 25(3): 66–72. Jiao Changke & Aiqun Li (2013). Research on random seismic response of long-span cable-stayed bridge under multi-excitation. Journal of Vibration Engineering, 26(5): 707–714. Kailai Deng, Pan Peng & Li Wei, et al (2015). Development of a buckling restrained shear panel damper. Journal of Constructional Steel Research, 106: 311–321. Kailai Deng, Pan Peng & Yukun Su, et al (2014). Development of an energy dissipation restrainer for bridges using a steel shear panel. Journal of Constructional Steel Research, 101: 83–95. Lanning J., G. Benzoni & C.M. Uang (2016). Using buckling-restrained braces on long-span bridges rullscale testing and design implications. I: full-scale testing and design implications. ASCE, Journal of Bridge Engineering, 04016001. Lanning J., G. Benzoni & C.M. Uang (2016). Using buckling-restrained braces on long-span bridges. II: feasibility and development of a near-fault loading protocol. ASCE, Journal of Bridge Engineering, 04016002. Okamoto Y. & S. Nakamura (2011). Static and seismic studies on steel/concrete hybrid towers for multi-span cable-stayed bridges. Journal of Constructional Steel Research, 67(2): 203–210.

Research on the interfacial bond behavior between CFRP sheet and steel plate under the static load

Figure 6. Bond-slip relationship of S200-40-3.

Figure 7. Approximate mode of bond-slip relation.

Kjellmann, W. (1952). Consolidation of Clay Soil by Means of Atmospheric Pressure. Proceedings on Soil Stabilization Conference, Boston, USA, 258–263.

Liang, A. Z., Jianwei, B. F., Yunzeng, C. G., & Fengjie, D. H. (2013). Application of new “straight line” vacuum preloading method in soft soil foundation treatment. Proceedings of the 7th International Conference on Asian and Pacific Coasts Bali, Indonesia, 785–789.

Long, P. V., Nguyen, L. V., Bergado, D. T., & Balasubramaniam, A. S. (2015). Performance of PVD improved soft ground using vacuum consolidation methods with and without airtight membrane. Geotextiles & Geomembranes 43 (6), 473–483.

Mohamedelhassan, E. & Shang, J.Q. (2002). Vacuum and surcharge combined one-dimensional consolidation of clay soils. Canadian Geotechnical Journal 39 (5), 1126–1138.

Rujikiatkamjorn, C. & Indraratna, B. (2007). Analytical solutions and design curves for vacuum-assisted consolidation with both vertical and horizontal drainage. Canadian Geotechnical Journal 44 (2), 188–200.

Rujikiatkamjorn, C., Indraratna, B., & Chu, J. (2007). Numerical modelling of soft soil stabilized by vertical drains, combining surcharge and vacuum preloading for a storage yard. Canadian Geotechnical Journal 44 (3), 326–342.

Rujikiatkamjorn, C., Indraratna, B., & Chu, J. (2008). 2D and 3D numerical modeling of combined surcharge and vacuum preloading with vertical drains. International Journal of Geomechanics 8 (2), 144–156.

Saowapakpiboon, J., Bergado, D. T., Hayashi, S., Chai, J. C., Kovittayanon, N., & De Zwart, T. P. (2008). Ceteau PVD vacuum system in soft Bangkok clay: a case study of the Suvarnabhumi airport project. Lowland Technology International 10 (1), 42–53.

Saowapakpiboon, J., Bergado, D. T., Voottipruex, P., Lam, L. G., & Nakakuma, K. (2011). PVD improvement combined with surcharge and vacuum preloading including simulations. Geotextiles & Geomembranes 29 (1), 74–82. Saowapakpiboon, J., Bergado, D.T., Chai, J.C., Kovittayanon, N., & De Zwart, T.P. (2008a). Vacuum-PVD combination with embankment loading consolidation in soft Bangkok clay: a case study of the Suvarnabhumi Airport Project. Proceedings 4th Asian Regional Conference on Geosynthetics, Shanghai, China, 18–27. Saowapakpiboon, J., Bergado, D.T., Hayashi, S., Chai, J.C., Kovittayanon, N., & De Zwart, T.P. (2008b). CeTeau PVD vacuum system in soft Bangkok clay: a case study of the Suvarnabhumi Airport Project. Lowland Technology International 10 (1), 42–53. Saowapakpiboon, J., Bergado, D.T., Thann, Y.M., & Voottipruex, P. (2009). Assessing the performance of Prefabricated Vertical Drain (PVD) with vacuum and heat preloading. Geosynthetics International 16 (5), 384–392. Saowapakpiboon, J., Bergado, D.T., Youwai, S., Chai, J.C., Wanthong, P., & Voottipruex, P. (2010). Measured and predicted performance of Prefabricated Vertical Drains (PVDs) with and without vacuum preloading. Geotextiles and Geomembranes 28 (1), 1–11. Shang, J. Q., Tang, M., & Miao, Z. (1998). Vacuum preloading consolidation of reclaimed land: a case study. Canadian Geotechnical Journal 35 (5), 740–749. Tang, M. & Shang, J.Q. (2000). Vacuum preloading consolidation of Yaogiang Airport Runway. Geotechnique 50 (6), 613–653. Walker, R. & Indraratna, B. (2006). Vertical drain consolidation with parabolic distribution of permeability in smear zone. Journal of Geotechnical and Geoenvironmental Engineering, ASCE 132 (7), 937–941. Walker, R. & Indraratna, B. (2009). Consolidation analysis of a stratified soil with vertical and horizontal drainage using the spectral method. Geotechnique 59 (5), 439–449. Yan, S.W. & Chu, J. (2005). Soil improvement for a storage yard using the combined vacuum and fill preloading method. Canadian Geotechnical Journal 42 (4), 1093–1104.

Enhancement on fireproof performance of construction coatings using calcium sulfate whiskers prepared from wastewater

Abidi, S. 2015. Impact of perlite, vermiculite and cement on the thermal conductivity of a plaster composite material: experimental and numerical approaches. Compos. Pt. B-Eng., 68: 392–400.

Baltpurvins, K.A. 1996. Heavy metals in wastewater: modelling the hydroxide precipitation of copper (II) from wastewater using lime as the precipitant. Waste Manage., 16: 717–725.

Deng, L.C. 2013. Reactive crystallization of calcium sulfate dihydrate from acidic wastewater and lime. Chin. J. Chem. Eng., 21: 1303–1312.

Jiang, J.X. 2015. Effect of flame retardant treatment on dimensional stability and thermal degradation of wood. Constr. Build. Mater., 75: 74–81.

Kolaitis, D.I. 2014. Fire protection of light and massive timber elements using gymsum platerboards and wood based panels: A large-scale compartment fire test. Constr. Build. Mater., 73: 163–170.

Mao, X.L. 2014. Effects of metal ions on crystal morphology and size of calcium sulfate whiskers in aqueous HCl solutions. Ind. Eng. Chem. Res., 53: 17625–17635.

Simulation of nonlinear ultrasonic waves in anisotropic materials using convolution quadrature time-domain boundary element method

Furukawa, A., Saitoh, T. & Hirose, S. (2014). Convolution quadrature time-domain boundary element method for 2-D and 3-D elastodynamic analyses in general anisotropic elastic solids, Eng. Anal. Bound. Elem. 39, 64–74.

Hirose, S. (1994). 2-D scattering by a crack with contactboundary conditions, Wave Motion 19, 37–49.

Hirose, S. & Saitoh, T. (2014). Numerical simulation of nonlinear ultrasonic waves due to bi-material interface contact, J. Phys., Conf. Ser. 19, 520 012001, 37–49.

Lubich, C. (1998). Convolution quadrature and discretized operational calculus I, Numer. Math. 52, 129–145.

Maruyama, T., Saitoh, T. & Hirose, S. (2014). 3-D BEM simulation of nonlinear ultrasonic waves due to contact acoustic nonlinearlity, Proc. 1st Int. conf. comput. eng. and sci. safety and environ. prob., 756–759.

Maruyama, T., Saitoh, T., Bui, T. Q. & Hirose, S. (2016). Transient elastic wave analysis of 3-D large-scale cavities by fast multipole BEM using implicit RungeKutta convolution quadrature, Comput. Method. Appl. M. 303, 231–259. Saitoh, T., Chikazawa, F. & Hirose, S. (2014). Convolution quadrature time-domain boundary element method for 2-D fluid-saturated porous media, Appl. math. model. 38, 3724–3740. Saitoh, T., Nakahata, K. & Hirose, S. (2010). Improved time-domain BEM analysis for a solid-solid interface with contact boundary conditions, Theor. Appl. Mech. Japan. 58, 9–17. Saitoh, T., Zhang, Ch. & Hirose, S. (2009). Largescale multiple scattering analysis of SH waves using time-domain FMBEM, Adv. Bound. Elem. Tech. 4, 159–164. Schanz, M. (2001). Wave propagation in viscoelastic and poroelastic continua, A Boundary Element Approach, Springer. Solodov, I. Yu., Doring, D., Busse, G. (2011). New opportunities for NDT using non-linear interaction of elastic waves with defectsk, J. Mech. Eng. 57–3, 169–182.

Carrigan, A., R. King, J.M. Velasquez, M. Raifman, and N. Duduta. Social environmental and economic impacts of BRT systems. Bus rapid transit case studies from around the world. Washington D.C., United States of America, Carrigan, 2013.

Chen S, Schonfeld P. Joint optimization of a rail transit line and its feeder bus system. Journal of Advanced Transportation, 1998, 32(3): 253-284.

Dong, X. Smooth connection between bus rapid transit and regular bus transit. Chengdu: Southwest Jiaotong University, 2011.

Fang, X. Research on the method of laying and optimizing feeder bus lines for urban rail transit. Chengdu: Southwest Jiaotong University, 2013.

Kuah, Perl. Optimizition of feeder bus routes and busstop spacing. Journal of Transportation Engineering, 1988, 114(1): 341-354.

Kuan, S.N., H.L. Ong, and K.M. Ng. Solving the feeder bus network design problem by genetic algorithms and ant colony optimization. Advances in Engineering Software, Vol. 37, No. 6, 2006, pp. 351-359.

Kuan, S.N., H.L. Ong, K.M. Ng. Solving the feeder bus network design problem by genetic algorithms and ant colony optimization. Advances in Engineering Software, 2005(10): 351-359.

Martins, C.L., and M.V. Pato. Search strategies for the feeder bus network design problem. European Journal of Operational Research, Vol. 106, No. 2, 1998, pp. 425-440.

National Report on Urban Passenger Transport Development. Ministry of Transport, P.R China, 2014.

Niu, S. Research on the Optimization of Feeder Bus Network in Coordination with Urban Rail Transit. Chengdu: Southwest Jiaotong University, 2011.

Pabhat Shrivastava, Margaret O'Mahony. A model for development of optimized feeder outes and coordinated chedules-A genetic algorithms approach. Transportation Policy, 2006, 13(5): 413-425. Shoaid Chowdhury, Steven Chien. Optimization of Tranfer Coordination for Intermodal

Transit Network. Transportation Research Board 80th Annual Meeting, 2001, January 7-11. Shrivastava, Dhingra. Development of feeder routes for suburban railway station using heuristic approach. ASCE Journal of Transportation Engineering, 2001, 127(4): 334-341. Verma, A., and S.L. Dhingra. Feeder bus routes generation within integrated mass transit planning framework. Journal of Transportation Engineering, Vol. 131, No. 11, 2005, pp. 822-834. Vuchic, V.R. Urban Transit: Operations, Planning and Economics. John Wiley & Sons, New Jersey, United States of America, 2005. Wang, S., L. Sun, and J. Rong. Research on influence area of rail transit stations in Beijing City. Journal of Transportation Systems Engineering and Information Technology, Vol. 13, No. 3, 2013, pp. 184-185. Wirasinghe, Herdle, Newell. Optial parameters for a coordinated rail and bus transit system. Transport Science, 1977, 11(4): 359-374. Wirasinghe. Nearly optimal Parameters for a rail feeder bus system on a rectangular grid. Transport Research Part A, 1980, 14(1): 33-40. Xiaoguo Zhu. Research on coordination of bus transit rapid and ragular bus. Changsha: Changsha University of Science and Technology, 2009. Xiaoying Bi, Xuewu Chen, Zimu Li. Study on characteristics of BRT network based on L-topological spaces. Journal of Transportation System Engineering and Information Technology, 2011(5): 173-180. Xiong, J., W. Guan, and L.Y. Song. Optimal routing design of a community shuttle for metro stations. Transportation Engineering, Vol. 139, 2013, pp. 1211-1223.

Design of a campus view of a virtual roaming system based on VR

Biocca, F., & Levy, M.R. (Eds.). 2013. Communication in the age of virtual reality. Routledge.

Earnshaw, R.A. (Ed.). 2014. Virtual reality systems. Academic press.

Gan, Q., & Li, W. 2015. VRML-based virtual roaming system of Pingdingshan museum. Journal of Terahertz Science and Electronic Information Technology, 4, 023.

Jiao, N., Liu, S., Li, L., Wang, Q., Zhao, J., & Zhao, P. 2014. Design and Research of Lunar Rover HumanComputer Interactive Roaming System. InProceedings of the 13th International Conference on Man-Machine-Environment System Engineering (pp. 293–300). Springer Berlin Heidelberg.

Jun, T., Fengjun, L., & Ping, W. 2015. National museum research based on virtual roaming technology. In 2015 Seventh International Conference on Measuring Technology and Mechatronics Automation (pp. 683–688). IEEE.

Analysis on sustainable financial framework and fare adjustment strategy of China's urban public transit

Table 3. The factors of fare adjustment formula

Qingdao case study.

Factors	Value
L_{2014}/L_{2012} (a)	1.296
E_{2014}/E_{2012}	0.942
CPI (2014.12) (b)	1.026
F_{2014}/F_{2012}	0.920
C_1 (c)	0.598
C_2 (c)	0.238
C_3 (c)	0.078
C_4 (c)	0.026
C_5 (c)	0.060
X	0.113

(a) Average wage of employed persons in urban units. Available at http://www.stats-qd.gov.cn.

(b) Available at http://www.stats-qd.gov.cn.

(c) Average weight coefficient in the overall costs from 2012 to 2014.

Table 4. Fare level comparison-Qingdao case study.

Average adult base cash fare	Fare level (CNY)
Operating cost fare	2.845
Implementing fare	1.000
Adjusted fare	1.113

Sanitation improvement and the bottleneck analysis of equity in China: From the perspective of specialists

Boschi-Pinto, C., Velebit, L. & Shibuya, K. 2008 Estimating child mortality due to diarrhoea in developing countries. Bulletin of the World Health Organization 86, 710–717.

Chen J, Li Z, Gao X, Du H, Yu L, Ren H, et al. 2013 Toilet retrofit in rural areas of China: impact factors and effect analysis. Chin Rural Health Serv Adm 002:181–3.

Hossain SI. 1996 Making an equitable and efficient education: The Chinese experience. China: Social Sector Expenditure Review, World Bank;

Hutton, G. 2013 Global costs and benefits of reaching universalcoverage of sanitation and drinking-water supply. Journal of Water & Health 11, 1–2.

Kakwani N, Wagstaff A, Van Doorslaer E. .1997 Socioeconomic inequalities in health: measurement, computation, and statistical inference. J Econ77(1),87–103.

Laiyun S. 2012 China Statistical Yearbook 2012. China Statistics Press, Beijing.

Ministry of Finance 2012 Report on the implementation of central and local budgets for 2012. Xinhua, Beijing. Available from: http://news.xinhuanet.com/english/china/2012-03/16/c_131472175.htm.

Ministry of Health P.R. China 2013 China Health Statistics Yearbook 2013. Peking Union Medical College Press, Peking.

National Bureau of Statistics of China 2012 China Statistical Yearbook 2012. China Statistics Press, Beijing.

Prüss-Üstün, A., Bos, R., Gore, F. & Bartram, J. 2008 Safer water,better health: costs, benefits and sustainability of interventions to protect and promote health. World Health Organization:Geneva.

Zhang, X., Xiong, Y., Ye, J., Deng, Z. & Zhang, X. 2013 Analysis of government investment in primary healthcare institutions to promote equity during the three-year health reform program in China. BMC Heal Serv Res. 13, 114.

Ultimate capacity of uniaxially compressed perforated steel plates strengthened by using CFRPs

Alsayed, S., Al-Salloum, Y. & Almusallam, T. 2000. Fibre-reinforced polymer repair materials—some facts. Proceedings of the Institution of Civil EngineersCivil Engineering. Thomas Telford Ltd, 131–134.

Cheng, B. & Zhao, J. 2010. Strengthening of perforated plates under uniaxial compression: Buckling analysis. Thin-Walled Structures, 48, 905–914.

Moy, S.S. 2001. FRP composites: life extension and strengthening of metallic structures, Thomas Telford.

Narayanan, R. & Chow, F. 1984. Ultimate capacity of uniaxially compressed perforated plates. Thin-Walled Structures, 2, 241–264.

Narayanan, R. & Rockey, K. 1981. Ultimate load capacity of plate girders with webs containing circular cut-outs. Proceedings of the institution of civil engineers, 71, 845–862.

Paik, J.K. 2007. Ultimate strength of steel plates with a single circular hole under axial compressive loading along short edges. Ships and Offshore Structures, 2, 355–360.

Teng, J., Chen, J. & Smith, S. 2002. FRP: Strengthened RC Structures. Journal of Composites for Construction, ASCE, 6, 232–245.

Teng, J., Yu, T. & Fernando, D. 2012. Strengthening of steel structures with fiber-reinforced polymer composites. Journal of Constructional Steel Research, 78, 131–143.

Zhao, X.-L. & Zhang, L. 2007. State-of-the-art review on FRP strengthened steel structures. Engineering Structures, 29, 1808–1823. Figure 6. Load–deflection curves of specimens.

Research on the measurement of the permeability coefficient of porous asphalt pavement

Figure 5. The relationship between void content of the rutting plate and the seepage time tested by the pavement seepage meter.

Figure 6. The relationship between the seepage time of the rutting plate tested by the pavement seepage meter and the lateral permeability coefficient.

Mechanical performances of icing atop cement concrete surfaces coated with emulsion wax curing agents

AASHTO (2005). American Association of State Highway Officials (AASHTO). Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete. AASHTO Designation: M 148-05. ASTM (2007). ASTM C 309. Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete. American Society of Testing Materials, Philadelphia, PA. Ma, H., R. C. Yang & S. Z. Qian (2014). Research on asphalt concrete pavement deicing technology. Journal of Southeast University, 30(3), 336–342. Okamoto, P.A, P.J. Naussbaum, K.D. Smith, M.I. Darter, T.P. Wilson, C.L. Wu, & S.D. Tayabji (1994). Guidelines for Timing Contraction Joint Sawing and Earliest Loading for Concrete Pavements, Volume 1: Final Report. FHWA-RD-91-079. FHWA, U.S. Department of Transportation, February 1994.

A study on residential area's adaptability design for the aged in China based on open building theory

Figure 4. The apartment with no space segregation

except for 2 baths (CIB W104 2015).

sion (CIB W104 2015). Jiang, Y. & Jia, B. (2014). Industrialization and Customization in the Housing Industry of Japan. J. Architectural Journal, s1, 120–125. Kendall, S. (2009). Open Building Concepts. [Online] Available from: http://open-building.org/ob/concepts. html [Accessed 19th May 2009]. Lan, X. & Wei, H. (2015). Discussion on the Approach of Housing Industrialization Base on the "Open Building" Theory. J. Architecture & Culture, 07, 192–193. Li, A. (2010). CSI System Will Become the Foundation of Hundreds years housing—An Interview with Liu Meixia of Housing Industry Development Center. J. China Concrete, 12, 12–14. Liu, D. et al. (2015). A Study on Universal Design of Housing with Home-Based Care for the Aged. J. Architectural Journal, 06, 001–008. Miao, Q. et al. (2016). Architectural design and construction features of European residential buildings under the concept of open architecture. J. Housing Industry, 04, 18–25. National Bureau of Statistics of China (NBSC). (2015). Statistics of Real Estate Development. [Online] Available from: http://data.stats.gov.cn/easyquery. htm?cn = C01 [Accessed 10th August 2016]. Pan, H. & Ding, W. (2014). The Edification of New Trends of Proper Aging Collective Housing Design in Japan on Housing Design for the Elderly and Living Facilities for the Aged in China. J. Architecture & Culture, 12, 160–161. Qin, S. et al. (2014). A Study of the Development of Japanese Infill Components System from KEP to KSI. J. Architectural Journal, 07, 017–023. Qin, S. et al. (2015). Practicing Public Housing of Adaptability to the Aged—on the Project of Summit's Yuanzhu in Beijing. J. Architectural Journal, 06, 28–31. Senior Homes. (2016). Aging at Home: How to Prepare. [Online] Available from: http://www.seniorhomes. com/p/ag-ing-at-home/ [Accessed 9th August 2016]. Wang, M. & Mei, H. (2014). Design Strategies of Rural Houses in Frigid Areas of Northeast China Based on The Open Building Theory. J. Urbanism and Architecture, 28, 110–112. Wu, Q. et al. (2012). Research on the Development Dilemma and Optimization Strategy of Public Service Facilities in Old Community—A Case Study of Lujiazui Area. J. Shanghai Urban Planning Review, 01, 049–054. Zhan, Y. & Wu, F. (2014). Planning Strategies for Aging Megacities: A Case Study of Shanghai. J. Urban Planning Forum, 06, 38–45.

Safety management strategies for public infrastructure projects

Abdelhamid, T.S., Everett, J.G., 2000. Identifying root causes of construction accidents. Journal of Construction Engineering and Management 126, 52–60.

Aksorn,T., Hadikusumo, B.H.W., 2008. Critical success factors influencing safety program performance in Thai construction projects. Safety Science 46, 709–727.

Chi, C.F., Chang, T.C., Ting, H.I., 2005. Accident patterns and prevention measures for fatal occupational falls in the construction industry. Applied Ergonomics 36, 391–400.

Eisenbraun S. (Eds.), 2013. “Taiwan 2013 human rights report”, Country reports on human rights practices for 2013, United States Department of State-Bureau of Democracy, Human Rights and Labor, Washington, DC.

El-Mashaleh, M.S., Rababeh, S.M., Hyari, K.H., 2010. Utilizing data envelopment analysis to benchmark safety performance of construction contractors. International Journal of Project Management 28, 61–67.

Harper, R.S., Koehn, E., 1998. Managing industrial construction safety in Southeast Texas. Journal of Construction Engineering and Management 124, 452–457.

Hinze, J., Gambatese, J., 2003. Factors that influence safety performance of specialty contractors. Journal of Construction Engineering and Management 129, 159–164.

Hinze, J., Wilson, G., 2000. Moving toward a zero injury objective. Journal of Construction Engineering and Management 126, 399–403.

Huang, X., Hinze J., 2003. Analysis of construction worker fall accidents. Journal of Construction Engineering and Management 129, 262–271.

International labour office, 2006. “Strategies and practice for labour inspection”, Governing Body, 297th Session, Geneva.

Jaselskis, E.J., Anderson, S.D., Russell, J.S., 1996. Strategies for achieving excellence in construction safety performance. Journal of Construction Engineering and Management 122, 61–70.

Sawacha, E., Naoum, S., Fong, D., 1999. Factors affecting safety performance on construction sites. International Journal of Project Management 17, 309-315.

Taiwan Area National Expressway Engineering Bureau (TANEEB), Available at: http://gip.taneeb.gov.tw/ct.asp?xItem = 23777&ctNode = 3887 (5/12/2015).

Tam, C.M., Fung I.W.H., 1998. Effectiveness of safety management strategies on safety performance in Hong Kong. Construction Management and Economics 16, 49–55.

Toole, T.M., 2002. Construction Site Safety Roles. Journal of Construction Engineering and Management 128, 203–210.

Tzeng, W.L., Li, J.C.C., Chang, T.Y., 2006. A study on the effectiveness of the most advantageous tendering method in the public works of Taiwan. International Journal of Project Management 24, 431–437.

Wang, W.C., Wang, H.H., Lai, Y.T., Li J.C. C, 2006. Unitprice-based model for evaluating competitive bids. International Journal of Project Management 24, 156–166.

Weil, D. (2008). “A strategic approach to labour inspection.” International Labour Review, 147, 349–375.

The influence of the horizontal load on the stress-strain relationship of an asphalt layer

Ahmed Abdelazim Eltahan. A Mechanistic-Empirical Approach to The Development of A Stochastic Reflection Crack Prediction Model for Flexible Pavement Overlays[D]. Texas A&M University, PHD, December 1996.

Chen Fengfeng, Huang Xiaoming. Mechanical response of rigid base asphalt pavement under heavy load [J]. Highway traffic science and technology, 2007, 24 (6): 41-45.

Jiang Yi. Shop mechanics analysis and crack control measures of [D]. and the old asphalt pavement Changsha: Hunan University, 2009.

Ma Xin, Guo Zhongyin, Yang Group. Mechanical analysis of asphalt pavement damage mechanism considering horizontal loads [J]. Highway engineering, 2008.33 (5): 74-76. Roque R. Evaluating measured of tire contact stresses predict pavement response and performance [J]. Transportation Research Record. 2000, 1716:73-81. Shen Jinan. Road performance of asphalt and asphalt mixture[M]. Beijing: People's Communications Press. 2001. Wang Jun. Finite element analysis of the structural finite element analysis of cement concrete pavement [J]. North traffic. 2010. 12-15. Yang Xueliang, Liu Boying. Finite element analysis of temperature field and structure coupling of asphalt pavement [J]. Highway traffic science and technology, 2007, 23 (11): 1-4.

A study on the protection type of flow-guided porthole dies with twin cavities for semi-hollow Al-profiles

Figure 4. Schematic of the signal of the bridge structure.

Figure 5. Schematic of the signal of the bearing.

Figure 6. Schematic of the signal of the die structure composition.

A study on covering and protection type porthole dies for semi-hollow Al-profiles

Deng Rurong, Huang, Xuemei. Design of the extrusion die of semi-hollow aluminum profile [J]. Light Alloy Fabrication Technology, 2015, 43(4): 51–54. Hu Dongpo, Wang Leigang, Huang Yao. Steady-state simulation and die improvement on the extrusion of prolate aluminum profile [J]. Forging & Stamping Technology, 2015, 40(4): 69–73. Kuang Weihua, Chen Biaobiao. Research on design and structure of extrusion die for cantilever aluminum profile [J]. Hot Working Technology, 2013, 42(21): 136–138. Liu Jingan. Die design, manufacture, application and maintains for aluminum profiles extrusion [M] Beijing:Metallurgical Press, 1999: 181~183. Sun Xuemei, Zhao Guoqun. Fake porthole extrusion die structure design and strength analysis for cantilever aluminum alloy profiles [J]. Journal of Mechanical Engineering, 2013, 49(24): 39~44. Wang Liwei. Optimization design of extrusion die for the bigger slenderness ratio half hollow aluminum profile [J]. Die and Mould Manufacture, 2011(4): 61–64. Xie Jianxie, Liu Jingan, Die design, manufacture, application and maintains for aluminum profiles extrusion [M]. Beijing: Metallurgical Press, 2012: 133~138. Xu Yongli, Huang Shuangjian, Pang Zugao, et al. Failure analysis of extrusion die and optimization of heat treatment process for aluminum alloy circular tube [J]. Forging & Stamping Technology, 2015, 40(2): 116–122. Yu Mingtao, LI Fuguo. Simulation extrusion process of the sketch hollow aluminum profile based on infinite volume method [J]. Die and Technology, 2008(4): 40–43.

Table 1. A comparison of the die structure and extrusion results.

Die structure	Die life (tons)	Wall thickness deviation	Extrusion marks and brightness	Dimension precision level	Change of opening size	Processing difficulty	Die material
Traditional solid	Less than 1.2	Obvious	Deep and rough	General	Big	Big	62 kg
Covering and protection type	26.7	Not obvious	Low and shining	High	Medium	Simple	35 kg

A study on protection type porthole dies of semi-hollow Al-profiles with four cavities

Deng Rurong, Huang, Xuemei. Design of the extrusion die of semi-hollow aluminum profile [J]. Light Alloy Fabrication Technology, 2015,43(4):51–54. Hu Dongpo, Wang Leigang, Huang Yao. Steady-state simulation and die improvement on the extrusion of prolate aluminum profile [J]. Forging & Stamping Technology, 2015,40(4):69–73. Kuang Weihua, Chen Biaobiao. Research on design and structure of extrusion die for cantilever aluminum profile [J]. Hot Working Technology, 2013,42(21):136–138. Liu Jingan. Die design, manufacture, application and maintains for aluminum profiles extrusion [M]. Beijing: Metallurgical Press, 1999:181–183. Sun Xuemei, Zhao Guoqun. Fake porthole extrusion die structure design and strength analysis for cantilever aluminum alloy profiles [J]. Journal of Mechanical Engineering, 2013,49(24):39–44. Wang Liwei. Optimization design of extrusion die for the bigger slenderness ratio half hollow aluminum profile [J]. Die and Mould Manufacture, 2011(4):61–64. Xie Jianxie, Liu Jingan, Die design, manufacture, application and maintains for aluminum profiles extrusion [M]. Beijing: Metallurgical Press, 2012:133–138. Xu Yongli, Huang Shuangjian, Pang Zugao, et al. Failure analysis of extrusion die and optimization of heat treatment process for aluminum alloy circular tube [J]. Forging & Stamping Technology, 2015,40(2):116–122. Yu Mingtao, Li Fuguo. Simulation extrusion process of the sketch hollow aluminum profile based on infinite volume method [J]. Die and Technology, 2008(4):40–43.

Numerical and experimental study on stability of aluminium alloy riveted and stiffened panels under in-plane shear

Anyfantis KN, Tsouvalis NG. Post Buckling progressive failure analysis of composite laminated stiffened panels. Applied Composite Materials. 2012, 19(3–4): 219–236.

Cricrì G, Perrella M, Calì C. Experimental and numerical post-buckling analysis of thin aluminium aeronautical panels under shear load. Strain. 2014, 50(3): 208–222.

Jain HK, Upadhyay A. Buckling behavior of blade-, angle-, T-, and hat-stiffened FRP panels subjected to in-plane shear. Journal of Reinforced Plastics & Composites. 2010, 29(24): 3614–3623.

Lei ZK, Bai RX, Tao W, Wei X, Leng RJ. Optical measurement on dynamic buckling behavior of stiffened composite panels under in-plane shear. Optics and Lasers in Engineering. 2016, 87: 111–119.

Lei ZK, Wang CL, Zhou CL. Multi-frequency inversephase fringe projection profilometry for nonlinear phase error compensation. Optics and Lasers in Engineering. 2015, 66: 249–257.

Murphy A, Price M, Lynch C, Gibson A. The computational post-buckling analysis of fuselage stiffened panels loaded in shear. Thin-Walled Structures. 2005, 43(9): 1455–1474.

Orifici AC, Alberdi IODZ, Thomson RS, Bayandor J. Compression and post-buckling damage growth and collapse analysis of flat composite stiffened panels. Composites Science and Technology. 2008, 68(15–16): 3150–3160.

Rossini MB, Donadon MV. Numerical and experimental analysis of adhesively bonded stiffened panels subjected to in-plane compression loading. Advanced Materials Research. 2016, 1135: 140–152.

Villani ADPG, Donadon M, Arbelo MA, Rizzi P, Montestruque CV, Bussamra F, Rodrigues MRB. The post-buckling behavior of adhesively bonded stiffened panels subjected to in-plane shear loading. Aerospace Science & Technology. 2015, 46: 30–41.

Process optimization for the new nano-complex internal coating and its anti-corrosion and drag reduction properties in natural gas pipes

Fan Zhaotin, Yuan Zongming, Liu Jia etc. Corrosion Mechanism and Protection Research of H 2 S and CO 2 on Pipeline [J]. Oil-Gas Surface Engineering, 2008, 27(10):39–40.

He Renyang, Tang Xin, Zhao Xiong etc. Research Progress of Corrosion Protection Technology for Oil and Natural Gas Pipeline [J]. Process Equipment & Piping, 2013, 50 (1): 53–54. Liu Guangwen, Qian Chengwen, Yu Shuqing etc. Drag Reduction Technology of Internal Coating in Gas Transmission Pipeline [M]. Petroleum Industry Press, 2003: 2–3. Luo Peng, Zhao Xia, Zhang Yiling etc. Analysis of Direct Assessment on Internal Corrosion of External Gas Pipelines [J]. Oil & Gas Storage and Transportation, 2010, 29(2): 137–140. Ma Weifeng, Luo Jinheng, Cai Ke etc. The Situation and Existing Problem of Resistance—Drug Reduction Technology of Internal Coating in Gas Transmission Pipeline [J]. 2012, 9: 18–20. Zhu Xin. Corrosion of Long-distance Pipeline and Protection [J]. Petrochemical Corrosion and Protection, 2006, 23(1): 30–35.

An improved gray wolf optimization algorithm and its application in iron removal from zinc sulfate solution using goethite

El-Fergany A, Hasanien H. Single and multi–objective optimal power flow using grey wolf optimizer and differential evolution algorithms[J]. Electric Power Components and Systems, 2015, 43(13): 1548–1559.

Hydrometallurgy [J]. Control and Decision, 2013, 28(4): 590-594. Madadi A, Motlagh M. Optimal control of DC motor using grey wolf optimizer algorithm [J]. Technical Journal of engineering and Applied Science, 2014, 4(4): 373–379. Mirjalili S, Mirjalili S M, Lewis A. Grey wolf optimizer [J]. Advances in Engineering Software, 2014, 69(7): 46–61. Xiong Fuqiang, Gui Weihua, Yang Chunhua, et al. A double population co-evolution algorithm for process of zinc. Zhu A, Xu C, Li Z, et al. Hybridizing grey wolf optimization with differential evolution for global optimization and test scheduling for 3D stacked SoC [J]. Journal of Systems Engineering and Electronics, 2015, 26(2): 317-328.

Determination of multi-element in abstergent by ICP-MS with microwave digestion

2011/263/EU Commission Decision of 28 April 2011 on establishing the ecological criteria for the award of the EU Ecolabel to detergents for dishwashers (Notified under document C (2011) 2806) (1) [S]. 2011/382/EU Commission Decision of 24 June 2011 on establishing the ecological criteria for the award of the EU Ecolabel to hand dishwashing detergents (notified under document C(2011) 4448) (1) [S]. Chen Guoyou, Du Yingqiu, Ma Yonghua. Chinese journal of analytical chemistry, VOL. 37. No. 10: A058 (2009). Chen Yuhong, Zhang Hua, Shi Yanzhi, etc. Environmental chemistry VOL 25. No. 4: 520 (2006). Chuan Luo, Shujun Dai, Jiamei Ye, Advances in Energy Science and Equipment Engineering, ICEESE 2015, 30 MAY 2015, Guangzhou, China. GB/T 9985-2000 Detergents for hand dishwashing [S]. GS-11 Paints and Coatings [S]. GS-8 Household Cleaning Products [S]. HJ 458-2009 Technical for environmental labeling products Household detergents [S]. Hygienic Standard for Cosmetics (2007 Edition). Liu Conghua, Huang Lina, Yu Yidong. Chinese Journal of Analysis laboratory VOL. 24. No. 2:66 (2005). Luo Chuan, BeiLei Wu, Ying Zhang. Asian Journal of Chemistry VOL. 25, No 12, 6993 (2013).

Fabrication and application of superhydrophobic-superoleophilic porous Cu sponge

Viswanadam G. 2013. Water-Diesel Secondary Dispersion using Superhydrophobic Tubes of Nanifibers. Separation and Purification Technology, 104: 81–88.

Wen Zhang et al. 2015. Nano Cu porous Cu sponge needle superhydrophobic surface electrochemical Construction technology and properties of oil-water separation. Journal of Southeast University (Natural Science), 01: 69–73.

Wang C X et al. 2009. Facile approach in fabricating superhydrophobic and superoleophilic surface for water and oil mixture separation. ACS Applied Materials & Interfaces, 1(11): 2613–2617. Yang Y et al. 2014. Multifunctional foams derived from poly (melamine formaldehyde) as recyclable oil absorbents. J Mater Chem A, 2(2): 9994–9999. Yongge Wang. 2011. Adherent oil spill recovery equipment design research. Dalian Maritime University. Zhang M et al. 2012. Fabrication of coral-like superhydrophobic coating on filter paper for water-oil separation. Appl Surf Sci, 261(15): 764–769. Zhonghua Yao. 1993. Preparation and Properties of sorbitol type gelling agent. Shanghai Environmental University, 12(11): 24–25.

Preparation of porous ceramics using CaCO as the foaming agent

Bernardo, E., & Albertini, F. (2006). Glass foams from dismantled cathode ray tubes. J. Ceramics International. 32(6), 603–608.

Cao, G. & Yu, H. (2005). Oil pollution and governance. J. Coastal Enterprises and Science & Technology. (3), 92–94.

Deng, S. Y., Xue-Yi, X. U., & Qiu, Q. H. (2012). Present situation and prospect of research of remediation in oil-contaminated soil. J. Northern Horticulture. (14), 184–190. Fernandes, H. R., Tulyaganov, D. U., & Ferreira, J. M. F. (2009). Preparation and characterization of foams from sheet glass and fly ash using carbonates as foaming agents. J. Ceramics International. 35(1), 229–235. Gao, X., Xing-Jun, L. V., & Wang, L. (2014). Research status and prospects of foam glass. J. Research & Application of Building Materials. 4, 6–8. Hasheminia, S., Nemati, A., & Yekta, B. E. (2012). Preparation and characterisation of diopside-based glass–ceramic foams. J. Ceramics International. 38(3), 2005–2010. Jia, J., Liu, Y., & Li, G. (2009). Contamination characteristics and its relationship with physicochemical properties of oil polluted soils in oilfields of China. J. Journal of the Chemical Industry & Engineering Society of China. 60(3), 726–732. Jones, D. M., Head, I. M., & Gray, N. D. (2008). Crudeoil biodegradation via methanogenesis in subsurface petroleum reservoirs. J. Nature. 451(7175), 176–180. Kao, C. M., & Prosser, J. (2001). Evaluation of natural attenuation rate at a gasoline spill site. J. Journal of Hazardous Materials. 82(3), 275–289. Lösekann, T., Knittel, K., & Nadalig, T. (2007). Diversity and abundance of aerobic and anaerobic methane oxidizers at the haakon mosby mud volcano, barents sea. J. Applied & Environmental Microbiology. 73(10), 3348–3362. Qiao, Y. U., Jing, Y., & Wang, C. (2009). Foam glass and cyclic utilization of solid offal. J. Materials Review. 23(1), 93–96. Spiridonov, Y. A., & Orlova, L. A. (2003). Problems of foam glass production. J. Glass and Ceramics. 60(9), 313–314. Tian, Y. L., Zhan, M, & Sun, S. B. (2014). A Review on Technological Development of Foam Glass and Designation of Generation of Production Lines. J. Glass & Enamel. 42(3), 26–32. Zhang, J., Yong-Sheng, W. U., & Zhang, X. (2010). Research development of foam glass producing technique. J. Materials Review. 28(4), 25–30. Zhang, X., & Zeng, Z. (2006). Application of ecofriendly material—foamed glass. J. Journal of Building Materials. 9(2), 177–182.

Spacing optimization modeling and simulation of thermo-optic VOA gold thin film interconnect

Edmond J. Murphy (1999). Integrated optical circuits and components design and applications. New York Basel Marcel Dekker, Inc. 245–247.

Jianmin Liu (2006). Principle of heat and mass transfer and its application in electric power. M. Beijing: China Electric Power Press.

Junxing Yu (2014). Interconnect Failure Analysis and Reliability Modeling of the Thermo-optic Effect VOA. D. Hubei University of Technology.

Sihua Zeng (2004). Study on Polymeric Waveguide Optical Attenuator. D. Huazhong University of Science and Technology.

Xingjian Lv, Jun Yang, Ming Hai (2004). Polymer Waveguide Device’s Latest Development. J. Journal of Atmospheric and Environmental. 17(6).

Ying Li (2004). Study on Thermo—Optical Variable Attenuator of Organic Polymers. D. Zhejiang University.

Yuliang Liu, Enke Liu & Jinsheng Luo (1996). Thermooptic effect in the whole silicon optical waveguide switch. J. Chinese Science Bulletin, 6:575–576.

Growth and characterization of thick Ge epilayers on Si and Silicon-on-Insulator (SOI) substrates with low temperature Ge buffers

Figure 7. PL spectra of samples C and D.

Figure 8. Direct bandgap of Ge vs. tensile strain.

modulated by Fabry-Perot cavity formed between the surface of Ge and the interface of buried SiO_2. The enhancement of the luminescence peak inten sity of the Ge layer on SOI wafer in comparison with the Si wafer is about 2.5 fold and the FWHM of the maximum peak is reduced from 200 to 76 nm. What more interesting is that the integra tion over all spectra of the Ge layer on SOI wafer has a factor of 1.5 fold increases compared to that on Si wafer. This result implies that the absolute amount of light emitted in the Ge on SOI substrate is significantly increased.

4 CONCLUSION

We have grown high quality thick Ge epilayers on Si and SOI substrates utilizing low temperature Ge buffers by ultrahigh vacuum chemical vapor

Effect of ZnSO and SnSO additions on the morphological of α-Al O flakes for pearlescent pigment

Wu, N., Chen, Q.H. & Zhou, W.M. (2014). An Exploration of Factors Affecting the Preparation of SiO_2-Coated α-Al_2O_3 Pearlescent Pigment. C.//Advanced Materials Research. Trans Tech Publications. 983, 26–29.

Xu, G.G., H.Z. Cui & G.Z. Ruan. (2013). Synthesis of highly dispersed α-Al_2O_3 platelets in KCl-K_2SO_4-Na_2SO_4 composite flux. J. Mater. Res. Innov. 17, 224–227.

Zhang, J., Cheng X. & Zeng L. (2014). Preparation of Flaky Aluminum Oxide for Pearlescent Pigment. J. China Ceramic Industry. 6, 001. Zhang, L., J. Vleugels (2010). Fabrication of textured alumina by orienting template particles during electro phoretic deposition. J. J. Eur. Ceram. Soc. 30: 1195–1202. Zhu, L.H., R.R. Tu & Q.W. Huang (2011). Molten salt synthesis of α-Al_2O_3 platelets using $NaAlO_2$ as raw material. J. Ceram. Int. 38, 901–908. Zhu, L.H., Q.W. Huang (2011). Morphology control of α-Al_2O_3 platelets by molten salt synthesis. J. Ceram. Int. 37, 249–255.

A facile cost-effective method for preparing superhydrophobic carbon black coating on Al substrate

Figure 4. Self-cleaning process on the carbon nanoparticle deposited aluminum alloy surface: (a) the surface with sand as a model of contaminant; (b-c) the contaminated surface with one water drop on it; (d) the contaminated surface after the sliding of water droplets.

water droplets brought away the contaminants completely and left a clean surface (Figure 4d), which confirmed the excellent self-cleaning ability of the prepared graphene coating.

4 CONCLUSION

In conclusion, we have developed a facile and cost-effective spray-coating method to prepare carbon nanoparticle superhydrophobic coating. The carbon nanoparticle deposited aluminum alloy surface exhibited high water contact angle ($160 \pm 1^{\circ}$) and low sliding angle (5°). Furthermore, the as-prepared superhydrophobic aluminum surface exhibited excellent self-cleaning property. Thus, the aformentioned great properties make this method a promising candidate to fabricate a superhydrophobic surface on an aluminum sheet for wide application.

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Preparation of multifunctional flake alumina ceramics

Table 4. The morphology analysis of sintering powder

obtained at 1200°C and 7 h by adding $ZnSO_4$, $SnSO_4$ and

$TiOSO_4$ at different temperatures.

Additive dosage Diameter to thickness ratio

1.77% $ZnSO_4$ + 0.13% $SnSO_4$ 0.21 26.11 124.33

1.77% $ZnSO_4$ + 0.26% $SnSO_4$ 0.39 21.32 54.67

0.89% $ZnSO_4$ + 0.13% $SnSO_4$ 0.60 29.61 49.35

0.09% $ZnSO_4$ + 0.0136% $SnSO_4$ + 0.10% $TiOSO_4$ 0.20 33.60 168.00

Study on the deformation of plastic films by virtual particle method

Figure 4. The calculating result of particle 1.

An experimental study of installing-holes distances parameter optimization for metallic inserts bonded into CFRP laminates

Camanho, P. P., Fink, A., Obst, A., & Pimenta, S. (2009). Hybrid titanium–cfrp laminates for high-performance bolted joints. Composites Part A Applied Science & Manufacturing, 40(12), 1826–1837.

Camanho, P. P., & Matthews, F. L. (2000). Bonded metallic inserts for bolted joints in composite laminates. Proceedings of the Institution of Mechanical Engineers Part L Journal of Materials Design & Applications, 214(1), 33–40.

Camanho, P. P., Tavares, C. M. L., Oliveira, R. D., Marques, A. T., & Ferreira, A. J. M. (2005). Increasing the efficiency of composite single-shear lap joints using bonded inserts. Composites Part B Engineering, 36(5), 372–383.

Hopkins, M., Dolvin, D., Paul, D., Anselmo, E., & Zweber, J. (2006). Structures technology for future aerospace systems. Aiaa/asme/asce/ahs/asc Structures, Structural Dynamics, and Materials Conference and Exhibit (pp.76).

Mccarthy, C. T., & Mccarthy, M. A. (2005). Three-dimensional finite element analysis of single-bolt, single-lap composite bolted joints: part ii--effects of bolt-hole clearance. Composite Structures, 71(2), 159–175.

Formation and test methods of the thermo-residual stresses for thermoplastic polymer matrix composites

Arjyal, B.P., C. Galiotis, S.L. Ogin and R.D. Whattingham, Residual strain and Young's modulus determination in cross-ply composites using an embedded aramid fiber strain sensor, Composites Part A, 29 (1998) 1363–1369. Asloun, E.M., M. Nardin, J. Schultz, Stress transfer in single-fiber composites: effect of adhesion, elastic modulus of fiber and matrix, and polymer chain mobility, J. Mater. Sci. 24 (1989) 1835–1844. Barnes, J.A., G.E. Byerly The formation of residual-stress in laminated thermoplastic composites, Compos. Sci. Technol. 51 (1994) 479–494. Bernhardson, J., R. Shishoo, Effect of parameters on consolidation quality of GF/PP commingled yarn based composites, J. Thermoplast Compos. 13 (2000) 292–313. Eijpe, M.P., C. Powell, Residual stress evaluation in composites using a modified layer removal method, Compos. Struct. 37 (1997) 335–342. Fenn, R.H., A.M. Jones, G.M. Wells, X-ray diffraction investigation of triaxial residual stresses in compositematerials, J. Compos. Mater. 27 (1993) 1338–1351. Gao, S.L., J.K. Kim, Cooling rate influences in carbon fiber/PEEK composites. Part 1. cystallinity and interface adhesion, Composites Part A, 31 (2000) 517–530. Kim, K.S., H.T. Hahn, R.B. Croman, The effect of cooling rate on residual stresses in a thermoplastic composite, J. Compos. Tech. Res. 11 (1989) 47–52. Makino, A., D. Nelson, Residual stress determination by single-axis holographic interferometry and hole drilling-Part I: Theory, Exp. Mech. 34 (1994) 66–78. Nairn, J.A., P. Zoller, Matrix solidification and the resulting residual thermal stresses in composites, J. Mater. Sci. 20 (1985) 355–367. Nielsen, A.S., R. Pyrz, A novel approach to measure local strains in polymer matrix systems using polarized Raman microscopy, Compos. Sci. Technol. 62 (2002) 2219–2227. Parlevliet, P.P., H.E.N. Bersee, A. Beukers, Residual stresses in thermoplastic composites-A study of the literature-Part I: Formation of residual stresses, Composites Part A, 37 (2006) 1847–1857. Parlevliet, P.P., H.E.N. Bersee, A. Beukers, Residual stresses in thermoplastic composites-A study of the literature-Part II: Experimental techniques, Composites Part A, 38 (2007) 651–665. Parlevliet, P.P., H.E.N. Bersee, A. Beukers, Residual stresses in thermoplastic composites-A study of the literature-Part III: Effects of thermal residual stresses, Composites Part A, 38 (2007) 1581–1596. Pawlak, A.P., Zinck, A. Galeski and J.F. Gerard, Photo-elastic studies of residual stresses around fillers embedded in an epoxy matrix, Macromol. Symp. 169 (2001)

197-210. Schinner, G., J. Brandt, H. Richer, Recycling carbonfiber reinforced thermoplastic composites, J. Thermoplast Compos. 9 (1996) 237-245. Wang, S.K., Z. Mei, D.D.L. Chung, Interlaminar damage in carbon fiber polymer-matrix composites studied by electrical resistance measurement, Int. J. Adhes. Adhes. 21 (2001) 465-471.

Effects of lithium slag from lepidolite on Portland cement concrete

Figure 5. SEM image of interfaces of L0 after 28 days.

Sorption properties of TEMPO-oxidized natural cellulose to iron ions

David, W.O., B. Colin & F.O. Thomas. 2008. Heavy metal adsorbents prepared from the modification of cellulose: a review, Bioresour.Technol. vol. 99: 6709–6725.

Ferraiolo, G., M. Zilli & A. Converti. 1990. Fly-ash disposal and utilization, J Chem Technol Biotechnol vol. 47: 281–306.

Gupta, V.K., P. Singh & N. Rahman. 2004. Adsorption behavior of Hg (II), Pb (II) and Cd (II) from aqueous solution on duolite C-433: a synthetic resin, J Colloid Interf. Sci. vol. 275: 398–403.

Gupta, V.K., V.K. Saini & N. Jain. 2005. Adsorption of As (III) from aqueous solutions by iron-oxide coated sand, J Colloid Interf. Sci. vol. 288: 55–61.

Gurgel, L.V.A., R.P. Freitas & L.F. Gil. 2008. Adsorption of Cu(II), Cd(II), and Pb(II) from aqueous single metal solutions by sugarcane bagasse and mercerized sugarcane bagasse chemically modified with succinic anhydride, Carbohydrate Polymers, Vol. 74 (4): 922–929.

Isobe, N., X.X. Chen, U.J. Kimb, S. Kimura, M. Wada,T. Saito & A. Isogai. 2013. TEMPO-oxidized cellulose hydrogel as a high-capacity and reusable heavy metal ion adsorbent, Journal of Hazardous Materials vol. 260:195–202.

Isogai, A. & Y. Kato. 1998. Preparation of polyuronic acid from cellulose by TEMPO-mediated oxidation, CELLULOSE vol. 5: 153–164. Klemm, D., B. Heublein, H.P. Fink & A. Bohn. 2005. Cellulose: fascinating biopolymer and sustainable raw material, Angew. Chem. Int. Ed. vol. 44: 3358–3394. Kravchenko, T.A., L.L. Polyanskiy, V.A. Krysanov, E.S. Zelensky, A.I. Kalinitchev & W.H. Hoell. 2009. Chemical precipitation of copper from copper-zinc solutions onto selective sorbents, Hydrometallurgy vol. 95:141–144. Leandro, V.A.G., K.J. Osvaldo, P.F.G. ossimiriam & F.G. Laurent. 2008. Adsorption of Cu (II), Cd (II), and Pb (II) from aqueous single metal solutions by cellulose and mercerized cellulose chemically modified with cuccinic anhydride, Bioresour. Technol. vol. 99(8): 3077–3084. Luan, Z.K. & H.X. Tang. 1993. Study on surface properties of ore tailing particles and adsorption of heavy mental ions II. Adsorption of heavy metals onto ore tailing particles, Environmental Chemistry vol. 12 (5): 356–364, (in Chinese). Paulino, A.T., L.B. Santos & J. Nozaki. 2008.

Removal of Pb^{2+}, Cu^{2+}, and Fe^{3+} from battery manufacture wastewater by chitosan produced from silkworm chrysalides as a low-cost adsorbent, Reactive and Functional Polymers vol. 68(2): 634-643. Saito, T., I. Shibata, A. Isogai, N. Suguri & N. Sumikawa. 2005. Distribution of carboxylate groups introduced into cotton linters by the TEMPO-mediated oxidation, Carbohyd. Polym., vol. 61 (4):414-420. Volesky, B. 2001. Detoxification of metal-bearing effluents: biosorption for the next century, Hydrometallurgy vol. 59: 203-207. Xiong, Y.Y., Z.T. Fu & W.S. Huang. 2014. Research on Treatment of Simulated Wastewater Containing Copper by Chemical Sedimentation Method, Environmental Protection Science vol. 40: 35-39, (in Chinese). Xu H. & Y. Liu. 2008. Mechanisms of Cd^{2+}, Cu^{2+} and Ni^{2+} biosorption by aerobic granules, Separation and Purification Technology vol.58: 400-410.

Research on the precision of grinding experiments in an iron ore

Li Jian, Zhang Wei, Zhang Xiaoyu. Discussion of improving the quality of mill grinding [J]. Mining machinery, 2010, 38 (15): 97-99.

Liu Anpin, NI Wen, Zhang Zugang. Experimental study of flocculation deep cone enrichment for Meishan tailings [J]. Metal mine, 2005 (10): 30 ~ 33.

Shi Guiming, Wu Caibin, Xiao Liang, etc. Laboratory study of optimizing grinding system for tungsten polymetallic [J]. Non-ferrous metal science and engineering, 2013, 4 (5): 79-84.

Wang Peng. Application research of grinding medium in dressing [J]. Metal mine, 2010 (1): 132-134

Xiao Qinfei, SHI Guiming, Duan Xixiang. Progress and optimization of the grinding media [J]. Mining machinery, 2007, 35 (1): 28-32.

An experimental study on the dynamic characteristics of compact transmission lines bundles following ice shedding

Farzaneh, M., C. Volat, A. Leblond, Anti-icing and deicing techniques for overhead lines. (Springer, Netherlands, 2008).

Jamaleddine, A., G. McClure, J. Rousselet, R. Beauchemin, Comput. Structures 47, 523 (1993).

Ji, K., X. Rui, L. Li, C. Zhou, C. Liu, G. McClure, Shock Vib. 2015, Article Number 635230, (2015).

Kollar L.E. and M. Farzaneh, IEEE Trans. Power Del. 23, 1097 (2008).

Li, L., Z. Xia, G. Fu, Z. Liang, J. Vib. Shock 27, 32 (2008). (In Chinese)

László E Kollar and Masoud Farzaneh, IEEE Trans. Power Del. 28, 604 (2013).

McClure, G., K.C. Johns, F. Knoll, G. Pichette, in Proc. 11th Int. Workshop Atmospheric Icing Structures, Paper 9 (Brno, Czech Republic, 2002).

Meng, X., L. Hou, L. Wang, M. MacAlpine, G. Fu, B. Sun, Z. Guan, W. Hu, Y. Chen, Mech. Syst. Signal Process. 30, 393 (2012).

Morgan, V.T., D.A. Swift, Proc. Insti. Elect. Eng., 111, 1736 (1964).

Roshan M. Fekr and G. McClure, Atmos. Res. 46, 1 (1998).

Shen, G., L. Xu, X. Xu, W. Lou, B. Sun, Power Syst. Tech. 36, 201 (2012). (In Chinese)

Yang, F., J. Yang, H. Zhang, J. Cold Reg. Eng. (ASCE) 28, 1 (2014).

A single-lens optimal imaging system based on a liquid crystal spatial light modulator and micro-scanning optical wedge

Born M., Wolf E (1978) Principles of Optics Beijing: Science Press, P610.

Cai D.M., Ling N., Jiang W.H. (2007) SPIE 6457 64570P-1.

Cai Dongmei, Ling Ning, & Jiang Wenhan (2008). Analysis on Zernike Aberration Performance Fitting based on Pure Phase Liquid Crystal Spatial Light Modulator. Optical Technique, 57(2), 897–903.

Chen Jiaxin (2014). A Study on Mobile Terminal Camera Performance Evaluation System based on Imatest. Shanghai Jiaotong University.

Jame C. Wyant, & Katherine Creath (1992). Basic Wavefront Aberration Theory for Optical Metrology. New York, Academic Press, 28–35.

Jean Fortin, & Paul Chevrere (1996). Realization of a fast microscanning device for infrared focal plane arrays. SPIE. 1996, 2743, 185–196.

Kim, H.S., W.K. Yu, Y.C. Park, et al. Compact MWIR camera with × 20 zoom optics. SPIE. 2000, 4369, 673–679.

Love, G.D. (1997), Wavefront correction and production of Zernike modes with a liquid crystal SLM, Appl. Optics 36 (I March 1997).

Nam J, Rubin S J (2005) J.Opt.Soc.Am.A 22 1709.

Wang Zhihua, & Yu Xin (2008). A Study on Phase Modulation Measurement and Wavefront Correction of Liquid Crystal Spatial Light Modulator. Acta Physica Sinica, 02, 196–199+201.

Zhang Haitao, & Zhao Dazun (1999). A Study on Mathematical Principle and Implementation of Photoelectronic Imaging System Frequency Spectrum Aliasing Reduction by Microscanning. Acta Optica Sinica. 19(9), 1263–1268.

Zhang Hongxin, Zhang Jian, Qiao Yujin, Si Junshan, & Ma Wei (2013). A Study on Wavefront Stimulation and Error Compensation of Liquid Crystal Spatial Light Modulator. Journal of Optoelectronics Laser, 05, 838–842.

A geometry-based path optimization approach for motion control of the NC grinding machine

Figure 5. Part of the NC code of the presented graph.

Figure 4. Screenshot with schematic of the CNC grinding system.

A study on carbon electrode-based photoelectrochemical-type self-powered high-performance UV detectors

Lin, Z.H., G. Cheng, Y. Yang, Y.S. Zhou, S. Lee, Z.L. Wang 2014. Triboelectric nanogenerator as an active UV photodetector Adv. Funct. Mater. 24, 2810–2816.

Liu, Z., F. Li, S. Li, C. Hu, W. Wang, F. Wang, F. Lin, H. Wang 2015. Fabrication of UV Photodetector on TiO2/Diamond Film Sci. Rep. 5, 14420.

Lu, S., J. Qi, S. Liu, Z. Zhang, Z. Wang, P. Lin, Q. Liao, Q. Liang, Y. Zhang 2014. Piezotronic interface engineering on ZnO/Au-based schottky junction for enhanced photoresponse of a flexible self-powered UV detector ACS Appl. Mater. Inter. 6, 14116–14122.

Song, Z., H. Zhou, P. Tao, B. Wang, J. Mei, H. Wang, S. Wen, Z. Song, G. Fang 2016. The synthesis of TiO2 nanoflowers and their application in electron field emission and self-powered ultraviolet photodetector Mater. Lett. 180, 179–183. Wang, Z.L., J.H. Song 2006. Piezoelectric nanogenerators based on zinc oxide nanowire arrays Science. 312, 242–246. Wang, Z.L., W. Wu 2012. Nanotechnology-enabled energy harvesting for self-powered micro-nanosystems Angew. Chem. Int. Edit. 51, 11700–11721. Zhong, J.S., Q.Y. Wang, X. Zhu, D.Q. Chen, Z.G. Ji 2015. Sovolthermal synthesis of flower-like Cu3BiS3 sensitized TiO2 nanotube arrays for enhancing photoelectrochemical performace Alloy. Compd. 641, 144–147. Zhou, H., P. Gui, Q. Yu, J. Mei, H. Wang, G. Fang 2015. Self-powered, visible-blind ultraviolet photodetector based on n-ZnO nanorods/i-MgO/p-GaN structure light-emitting diodes J. Mater. Chem. C. 3, 990–994.

A scheme study of CFB power generation by using pet coke

Ding, S.R. 2004. Use research of pet coke. Lubes & Fuels 14(5/6): 26–29.

Dong, J., Chen, X.D., Peng, R.Y. & Yang, L.H. 2014. Engineering application of petroleum coke-fired CFB boilers. Power Equipment 28(5): 328–331.

Li, J.F., Lv, J.F., Zhang, J.S., Liu, Q., Yang, H.R. & Yue, G.X. 2005. Application of high sulphur content petroleum coke burned in circulating fluidized bed boiler. Boiler Technology 36(2): 37–42. Liu, D.C., Yuan, G.C., Zhang, C.L., Zhang, S.H., Chen H.P. & Lin, G. 2002. Some problems on the design of petroleum coke circulating fluidized bed boilers. Boiler Technology 33(6): 20–22, 27. Miao, C., Yang, W.J. & Wang H. 2014. Situation and trends in petroleum coke supply & demand, by region of the world—Highlights for Argus Asia petroleum coke summit 2014. International Petroleum Economics 22(5): 15–20. Pei, Y.M. & Feng, B.Y. 2013. Research of blending combustion of CFB boiler coal and petroleum coke. Power System Engineering 29(4): 10–11. Tang, B.X. & Li, P.N. 2004. The fundamental researching of the bed temperature of 75t/h CFB boiler where only petroleum coke is combusted. Petrochemical Safety Technology 20(3): 30–43. Wang, J.H. & Leng, B. 2009. Rational utilization of high sulfur petroleum coke and analysis of its pollution control measures. Environmental Protection Circular Economy 29(4): 27–29. Xiang, X.B. & Yuan, G.C. 2004. Design and operation analysis of 75t/h petroleum coke circulating fluidized bed boiler. Energy Conservation 23(8): 43–46. Xu, K.Z., Miao, C. & Song, A.P. 2011. Simply analysis of clean utilization technologies in high sulfur petroleum coke. Guangzhou Chemical Industry 39(20): 25–28, 42. Yuan, G.C. & Liu, D.C. 2002. Application of combustion technology on petroleum coke fired circulating fluidized bed. Energy Engineering 2: 45–47. Zheng, W.J. & Chen J. 2004. Existing problems and resolutions in CFB. Journal of Sinopec Management 35(2): 11–14. Zhu, H.Y. 2012. Analysis on petroleum coke market supply situation in China. Refining and Chemical Industry 23(6): 44–46.

Design of the pilot-scale double effect evaporator for high-concentration sodium hydroxide production

Table 3. Steam quality.

Enthalpy of saturated

steam at system pressure

(236972 Pa)

(±0.66 kJ kg^{-1} K^{-1}) Enthalpy of saturated liquid at system pressure (236972 Pa) (±2.02 kJ kg^{-1} K^{-1}) Enthalpy of superheated steam at barometric pressure (97697 Pa) (±1.2 kJ kg^{-1} K^{-1}) Steam quality (±0.001)

2714.29 527.74 2705.53 0.996

Table 4. Design of the double effect evaporator for the NaOH concentration process.

Parameters 1st EFFECT 2nd EFFECT Condenser

Liquid flow rate in (kg/s) 0.8 2.9 CW flow rate in (kg/s) 0.004

Solids content in (wt%) 0.1 0.4 CW temp. in (˚C) 13.0

Liquid flow rate out (kg/s) 0.257 0.200 CW temp. out (˚C) 21.2

Solids content out (wt%) 0.312 0.400 e (Pa) 6000 6000

Boiling temperature (˚C) 99.2 70.2

Saturation pressure (Pa) 50000 6000 Result

Boiling Point Elevation (˚C) 20 30 Steam consumption (kg/s) 1.35

Evaporation rate (kg/s) 0.543 0.057 Steam economy (kg vapor/kg steam) 0.4

Steam/vapor flow rate (kg/s) 1.353 0.543

Steam/vapor temperature (˚C) 100 79.21

Recycle stream flow rate (kg/s) N.A. 2.7

Early fault diagnosis of wind turbine gearboxes based on the DSmT

Florentin Smarandache, Jean Dezert. Advances and Applications of DSmT for Information Fusion [M]. New Mexico: American Research Press. 2004:3-31. Florentin Smarandache, Jean Dezert. Advances and Applications of DSmT for Information Fusion [M]. New Mexico: American Research Press. 2006:13-15. Florentin Smarandache, Jean Dezert. Advances and Applications of DSmT for Information Fusion [M]. New Mexico: American Research Press. 2006:49-50. Florentin Smarandache, Jean Dezert. DSmT Advances and Applications of DSmT for Information Fusion [M]. National Defend Industy Press. 2011:39-45. Florentin Smarandache, Jean Dezert. DSmT Advances and Applications of DSmT for Information Fusion [M]. National Defend Industy Press. 2011: VIII. Lu Shen, Fuchun Yang,Xiaojun Zhou. Gear Fault Feature Extraction Based on Improved EMD and Morphological Filtering [J]. Journal of Vibration and Shock, 2010, 29(3). Xusheng Zhai, Jinhai Hu, Shousheng Xie. Fault Diagnosis in Early Vibration of Aeroengine Based on DsmT [J]. Journal of Aerospace Power, 2012, 27(2). Xusheng Zhai, Jinhai Hu, Shousheng Xie. Fault Diagnosis in Early Vibration of Aeroengine Based on DsmT [J]. Journal of Aerospace Power, 2012, 27(2).

A study of an improved method for horizontal alignment based on the line element

Andrzej, K. (2014). New Solutions for General Transition Curves. Surveying Engineering 140(1): 12–21.

Cai, H.H. & Wang, G.J. (2010). Construction of cubic C-Bézier spiral and its application in highway design. Zhejiang University 2010(1): 68–74.

He, J.L & Zhang, X.S. (2004). Optimal Design on Geometric Compounds of A Highway. Forest Engineering 20(6): 58–59.

Jiang, Q.P. (2002). Study of the new types of transition curve of road. China Journal of Highway and Transport 15(2): 16–18.

Li, F. (1993). Building-Blocks for interchange Ramps Plane Alignment Layout. Southeast University 23(4): 25–31.

Miao, K. & Zhan, Z.Y. (2001). Study of interactive design method for highway's horizontal alignment based on segmentary element. Highway and Transport 14(3): 25–29.

Wu, G.X. (1994). A New Curve Method for Designing Highway Horizontal Alignment—Comprehensive Method. ChongQing JiaoTong Institute 15(suppl): 24–31.

Xu, J.L. (1997). The Controlled Segmentary Element Design Method of Interchange. Xi'an Highway University 17(4): 5–9.

Zhao, J. (2013). Based on the Weft to Interchange Design Aided Design Functions of Software Development. Chang'an University.

Theoretical analysis of mechanical properties and mechanical design for fabricated zero initial cable force friction dissipation

Figure 12. Graph showing the alternative variation of

Φ14 cables force.

Figure 13. Alternative variation of Φ20 cables force.

An optimal allocation model of residual control rights in the hydraulic PPP project

Francesconi, M. & A. Muthoo (2006). Control rights in Public-Private Partnerships. R. IZA Discussion Papers.

Grossman, S. J. & O. D. Hart (1986). The costs and benefits of ownership: a theory of vertical and lateral integration. J. The Journal of Political Economy. 94(4), 691-719.

Hart, O. & J. Moore (1990). Property rights and the nature of the firm. J. Journal of Political Economy. 98(6), 1119-1158.

Hart, O., A. Shleifer & R. W. Vishny (1997). The proper scope of government: theory and an application to prisons. J. The Quarterly Journal of Economics. 112(4), 1127-1161.

Hu, Z. (2012). The decision model of the allocation of control rights in public-private partnerships projects. J. Xi' an University of Architecture & Technology (Natural Science Edition). 44(01), 90-96. Rasmussen, R. K. & D. G. Baird (2001), Control rights, priority rights, and the conceptual foundation of corporate reorganizations. J. Virginia Law Review. 87(5), 921. Sun, H., Z. Q. Fan & Y. Shi (2011). Research on the optimal ownership structure of an ex expressway under a PPP scheme. J. Journal of Industry Engineering and Engineering Management. 3(1), 154-157. Ye, X. S., P. C. Yi & S. X. Wu (2011). The discussion of PPP project control rights' essence. J. Science & Technology Progress and Policy. 28(13), 67-70. Zhang, Z. & M. Jia (2012). A experimental study on allocation of control rights in PPPs. J. Journal of Systems & Management. 21(2), 166-179. Zhang, Z., M. Jia & D. F. Wan (2009). Theoretical study on the efficient allocation of control rights in the public-private partnership (PPP). J. Journal of Industrial Engineering and Engineering Management. 23(03), 23-29.

A study on the optimized hydraulic circulation system of the artificial lake

Fu Zongfu & Yu Guoqing 2011. Method of water quality improvement for urban lake based on concentrated and distributed water diverting. Journal of Tianjin University (3):51–56.

Kang Ling, Guo Xiaoming, Wang Xueli 2012. Study on water diversion schemes of large urban lake group. Journal of Hydroelectric Engineering (3):65–69.

You Aiju, Wu huaan, Jin Qiannan 2012. Study on the water requirement of man-made lake based on water pollution risk analysis. Environmental Pollution & Control 34(8):1–4.

You Aiju, Jin Qiannan, Han Zencui 2014. Water purification system design for man-made lake based on the source water quality. Resources, Environment and Engineering (3):3–8.

Development of new elastic constant estimation method using laser ultrasonic visualization testing

Auld, B.A. 1990. Acoustic fields and waves in solids, vol. 1, 2, R.E. Krieger.

Fellinger, P., Marklein, M., Langenberg, K.J. and S. Klaholz, S. 1995. Numerical modeling of elastic wave propagation and scattering with EFIT-elastodynamic finite integration technique, wave motion, vol. 21:47–66.

Furukawa, A, Saitoh, T. and Hirose, S. 2014. Convolution quadrature time-domain boundary element method for 2-D and 3-D elastodynamic analyses in general anisotropic elastic solids, Engineering Analysis with Boundary Elements, vol. 39:64–74.

Nakahata, K., Ichikawa, S., Saitoh, T. and Hirose, S. 2011. Acceleration of the 3D image-based FIT with an explicit parallelization approach, Review of progress in quantitative nondestructive evaluation, American Institute of Physics: 769–776.

Selection for the frequency control point of the VAV air supply system in large underground spaces

Table 6. Standard deviation of ratios between actual and rated air supply volumes for each branch pipe (%).

Constant pressure point	P1	P2	P3	P4
Branch I	0.012	0.005	0.019	0.002
Branch II	0.017	0.005	0.007	0.002
Branch III	0.018	0.004	0.006	0.004
Branch IV	0.011	0.010	0.009	0.008

Figure 2. Comparison of fan frequency and input power for different constant pressure point positions.

Figure 3. Comparison of system stability and system energy consumption among different constant pressure point positions.

The innovations of the ship lock design for the Tugutang Hydropower Station in the Xiangjiang river

Department of Transportation of Hunan Province (2007). Plan of Xiangjiang Waterway Development. R.

Department of Transportation of Hunan Province (2011). Plan of inland waterway development of Hunan Province. R.

Overall design specifications of drainage engineering hub (JTS 182-1-2009). S.

Transportation Planning Survey and Design Institute of Hunan Province (2012). Preliminary design report of Tugutang of Xiangjiang Navigation Project. R.

Wu Xin (2012). Key Technology of Guiping Second Line Ship lock for Xijiang Navigation Route. J. Journal of Hydraulic Engineering. 04, 108–114.

Zhai Huijuan, Li Hao, Zhang Linjiang (2008), Avionics construction of hub and development of inland water transport. J. Transport Construction and Management. 07, 68–72.

Zhang Chunyang, Sun Yimin (2001). Discussion of Water Control Landscape Planning Features-Area planning design of Guangdong Feilaixia Project. J. South China University of Technology (Natural Science). 07, 79–82.

Knowledge management in construction—the framework of high value density knowledge discovery with graph database

Bondy J.A. & U.S.R. Murty. Graph Theory by Bondy and Murty. Springer, 2008.

Ian Robinson, Jim Webber & Emil Eifrem. Graph Data- bases. O'Reilly, 2015.

Inmon W.H. Building the Data Warehouse. Wiley, 2005.

Jiawei Han, Micheline Kamber & Jian Pei. Data Mining Concepts and Techniques. Morgan Kaufmann, 2011.

Len Silverston, W.H. Inmon & Kent Graziano. The Data Model Resource Book: A Library of Logical Data Models and Data Warehouse Designs. Wiley, 1997.

Richard J. Trudeau. Introduction to Graph Theory (Dover Books on Mathematics). Dover Publications, 2013.

"From Relational to Graph Databases". Neo4j.

Research of cold region green hospital design specification and practice

Table 1. Room Air Changes of Jinzhou Central Hospi

tal (Design Program).

Room name	Number of air changes	Room name	Number of air changes
Consulting Room	5	Bathroom	10
Cleaning Room	10	Soiled Linens Room	5
Pharmacy	2	Lift Motor Room	10
Underground garage	6	Kitchen	30
Decontamination Room	10	Underground Restaurant	2
Disinfection Room	10	Treatment Room	5

Deng Xiaolin (2007). The analysis on difficulties of residual current devices. Rural Electrification.

Gu Huimin, Zhou Jigang (2006). Situation and development trend of the next generation of MCCB at home and aboard. Electrical Manufacturing, (10): 26–28.

Gu Qiaoli (2006). Research on intelligent leakage protection. Hebei University of Technology, Master’s degree thesis.

Microchip Technology, PIC16F882/883/884/886/887 Data-sheet, 2007.

Microchip Technology, PIC16F872 Data Sheet, 2002.

Microchip Technology, Product Select Guide, 2005.

National Semiconductor (2001). LM78XX Series 3-Terminal Negative Regulator.

National Semiconductor (2001). LM79XX Series 3-Terminal Negative Regulator.

Wu Shaoqin (2010). Development and application of residual current devices. Transportation Technology of Hei longjiang province, (11).

Zhang lixu, Fu zhouxing (2009). Development of single phase residual current protector. Xi’an University of Science and Technology. Master’s degree thesis.

Design of Control Moment Gyro equivalent sound source based on transfer function matrix inversion

Belvin, W. Sparks Dean, Horta Lucas, and Elliott Kenny, in 36th Structures, Structural Dynamics and Materials Conference (American Institute of Aeronautics and Astronautics, 1995).

Bhat S. and P. K. Tiwari, Automatic Control, IEEE Transactions on 54 (3), 585 (2009).

Gajdatsy, P., K. Janssens, Wim Desmet, and H. Van der Auweraer, Mechanical Systems and Signal Processing 24 (7), 1963 (2010).

Galeazzi, C., P.C. Marucchi-Chierro, and LV Holtz, in ESA International Conference on Spacecraft Structures, Materials and Mechanical Testing, Noordwijk, Netherlands (1996), pp. 997.

Gursoy E. and D. Niebur, IEEE Trans. Power Deliv. 24 (1), 285 (2009).

International Organization for Standardization, 2010. Acoustics—determination of sound power levels and sound energy levels of noise sources using sound pressure—engineering methods for an essentially free field over a reflecting plane. Kamesh, D., R. Pandiyan, and Ashitava Ghosal, Journal of Sound and Vibration 329 (17), 3431 (2010). Keith Belvin, W. Report No. NASA-TM-111574, 1995. Luo, Q., D. X. Li, W. Y. Zhou, J. P. Jiang, G. Yang, and X. S. Wei, Journal Of Sound And Vibration 332 (19), 4496 (2013). Manfred E. Wittig, L. van Holtz, D. E. Tunbridge, H. C. Vermeulen, and Bernard D. Seery, in Free-Space Laser Communication Technologies II, edited by David L. Begley (1990), Vol. 1218, pp. 205. Morio Toyoshima, Yoshihisa Takayama, Hiroo Kunimori, Takashi Jono, and Shiro Yamakawa, OPTICE 49 (8), 083604 (2010). Morio Toyoshima and Kenichi Araki, OPTICE 40 (5), 827 (2001). Munoz L., E. M. Marchante, presented at the Proceeding 48th International Astronautical Congress, Torino, Italy, (1997). Privat, M. presented at the 8th European Space Mechanisms and Tribology Symposium, (1999). Steven P. Neeck, Thomas J. Venator, Joseph T. Bolek, and Brian J. Horais, in Platforms and Systems, edited by William L. Barnes (1995), Vol. 2317, pp. 70. Sudey Jr J. and J. R. Schulman, Acta Astronautica 12 (7–8), 485 (1985). Tomio Kanzawa, Daigo Tomono, Tomonori Usuda, Naruhisa Takato, Satoru Negishi, Shinji Sugahara, and

Noboru Itoh, in Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series (2006), Vol. 6267. Wentao Mao, Dike Hu, and Guirong Yan, International Journal of Applied Electromagnetics & Mechanics 33 (3/4), 1001 (2010). Yan G. and L. Zhou, Journal Of Sound And Vibration 319 (3–5), 869 (2009). Zhang Yao and Zhang Jingrui, Aerospace and Electronic Systems, IEEE Transactions on 50 (2), 1017 (2014).

A study of the magnetic field distribution with saddle-shaped coil of the electromagnetic flow meter

Chen Tingxiang, Tai yachuan, Huang Baosen. Journal of Shanghai Jiaotong 01: 83–94 (1982).

Jin Ningde, Zong Yanbo, Zheng Guibo. Acta Petrolei Sinica, 02: 308–311 (2009).

Qiao Xutong, Xu Lijun, Dong Feng. Chinese Journal of Scientific Instrument, 23: 867–869 (2002).

Wang Yue-ming, Kong Ling-fu. Journal of Inner Mongolia University (Natural Science Edition). 01: 77–80 (2012).

Wangyueming, Konglingfu, Liyingwei. Journal of Computational Information Systems 8: 1573–1580 (2012).

Yueming Wang, Lingfu Kong. Journal of Computational Information Systems, 8(7): 2779–2786 (2011).

Zhao Chen, Li Bin, Chen Wen-jian. Journal of Shanghai University (Natural Science Edition) 14: 31–3 (2008).

A study on a localizable CMOS temperature sensor based on wireless transmission

Amador, C., J.P. Emond, M. Cecilia do N. Nunes. Application of RFID technologies in the temperature mapping of the pineapple supply chain [J]. Sensing and Instrumentation for Food Quality and Safety, 2009, 31. Crepaldi, P.C., T.C. Pimenta, R.L. Moreno. A CMOS low-voltage low-power temperature sensor. [J]. Microelectronics Journal, 2010, 41. Feng, J., M. Onabajo. Wide Dynamic Range CMOS Amplifier Design for RF Signal Power Detection via Electro-Thermal Coupling [J]. Journal of Electronic Testing, 2014, 301. Guédon, A.C.P., L.S.G.L. Wauben, D.F. Korne, M. Overvelde, J. Dankelman, J.J. Dobbelsteen. A RFID Specific Participatory Design Approach to Support Design and Implementation of Real-Time Location Systems in the Operating Room [J]. Journal of Medical Systems, 2015, 391. Kim, Y., P. Li. A 0.003-mm 2, 0.35-V, 82-pJ/conversion ultra-low power CMOS all digital temperature sensor for on-die thermal management [J]. Analog Integrated Circuits and Signal Processing, 2013, 751. Kung, H.Y., S. Chaisit, N.T.M. Phuong. Optimization of an RFID location identification scheme based on the neural network [J]. Int. J. Commun. Syst., 2015, 284. Lee, H., K. Kim, S. Jung, J. Song, J.K. Kim, C. Kim. A 0.0018 mm 2 frequency-to-digital-converter-based CMOS smart temperature sensor [J]. Analog Integrated Circuits and Signal Processing, 2010, 642. Luvisi, A., A. Panattoni, A. Materazzi, RFID temperature sensors for monitoring soil solarization with biodegradable films, Computers and Electronics in Agriculture, Volume 123, April 2016, Pages 135– 141, ISSN 0168–1699, http://dx.doi.org/10.1016/j.compag.2016.02.023. Ohzone, T., T. Sadamoto, T. Morishita, K. Komoku, T. Matsuda, H. Iwata. A CMOS Temperature Sensor Circuit. [J]. IEICE Transactions, 2007, 90-C. Yue, X., P. Hong-Bin, H. Shu-Zhuan, L. Li. A highly sensitive CMOS digital Hall sensor for low magnetic field applications. [J]. Sensors, 2012, 122.

Finite element analysis of the roller coaster wheel bridge based on virtual prototype technology

GB8408-2008, Amusement facilities safety specification standards, Beijing: Standardization Administration of China, 2008.

He, D.X. Wind engineering and industrial aerodynamics. National Defence Industry Press, Beijing, China (2006).

Li, Z.G. ADAMS detailed introduction and examples. National Defence Industry Press, Beijing, China (2009).

Liang, Z.H., Y. Shen, L.J.E. Analysis and criterion on the g-acceleration of amusement device. China Safety Science Journal, 18 (2008) 31–35.

Liang, Z.H., Y. Shen, P.Y. Qin. Dynamic modeling and simulation for amusement device as roller coasters. China Safety Science Journal, 17 (2007) 14–20.

Tian, H.Q., D. Zhou, P. Xu. Aerodynamic performance and streamlined head shape of train. China Railway Science, 27 (2006) 47–55.

Wang, H.Q. & J.R. Zheng. Analysis on the transient stress of the joints of roller coaster based on virtual prototype simulation Journal of Machine Design, 27 (2010) 25–28.

Multi-axis coordination control based on siemens S7-CPU315T

Figure 7. Synchronization of the virtual master axis and a real X-axis.

Figure 8. Relation between the set velocity and the actual velocity of a real X-axis.

Figure 9. Relation between the set position and the actual position of a real X-axis.

Short-term photovoltaic power forecasting based on the human body amenity and least squares support vector machine with fruit fly optimization algorithm

Figure 5. Error curves based on different algorithms.

Figure 4. Graph showing the PV power forecasting

results. Cortes, C., V. Vapnik. Support-vector networks. Machine Learning, Vol. 20, No. 3, pp. 273–297 (1995). Damousis, I.G., A.G. Bakirtzis, P.S. Dokopoutos. A solution to the unit commitment problem using intercoded genetic algorithm. IEEE Trans. on Power Systems, Vol. 19, No. 2, pp. 1165–1172 (2004). Du, Y., J.P. Lu, Q. Li, et al. Short-term wind speed forecasting of wind farm based on least square-support vector machine. Power System Technology, Vol. 32, No. 15, pp. 62–66 (2008). Hsu, C.C., C.Y. Chen. Regional load forecasting in Taiwan — applications of artificial neural networks. Energy Conversion and Management, Vol. 44, No. 12, pp. 1941–1949 (2003). Keerthi, S.S., C.J. Lin. Asymptotic behaviors of support vector machines with Gaussian kernel. Neural Computation, Vol. 15, No. 1, pp. 1667–1689 (2003). Li, R., Q. Chen, H.R. Xu. Wind speed forecasting method based on LS-SVM considering the related factors. Power System Protection and Control, Vol. 38, No. 21, pp. 146–151 (2010). Lu, N., J. Qin, K. Yang. A simple and efficient algorithm to estimate daily global solar radiation from geostationary satellite data. Energy, Vol. 5, No. 1, pp. 3179– 3188 (2011). Pan. W.T. A new fruit fly optimization algorithm: taking the financial distress as an example. Knowledge-Based Systems, Vol. 26, No. 2, pp. 69–74 (2012). Qin, H.C., W. Wang, H. Zhou, et al. Short-term electric load forecast using human body amenity indicator. Proceedings of the CSU-EPSA, Vol. 18, No. 2, pp. 63–66 (2006). Van Gestel, T., J.A.K Suykens, B. Baesens, et al. Benchmarking least squares support vector machine classifiers. Machine Learning, Vol. 54, No. 1, pp. 5–32 (2001). Wu. D. Discussion on various formulas for forecasting human comfort index. Meteorological Science and Technology, Vol. 31, No. 6, pp. 370–372 (2003).

An RFID-enabled CEP model for cloud manufacturing shopfloor

Zhong, R. Y., G. Q. Huang, Q. Y. Dai and T. Zhang. Mining SOTs and Dispatching Rules from RFID-enabled Real-time Shopfloor Production Data. Journal of Intelligent Manufacturing, 2014, 25(4): 825–843.

Zhong, R. Y., G. Q. Huang, S. L. Lan, Q. Y. Dai, C. Xu and T. Zhang. A Big Data Approach for Logistics Trajectory Discovery from RFID-enabled Production Data. International Journal of Production Economics, 2015, 165: 260–272.

Zhong, R. Y., Q. Y. Dai, K. Zhou and X. B. Dai. Design and Implementation of DMES Based on RFID. 2nd International Conference on Anti-counterfeiting, Security and Identification, Guiyang, 20–23 Aug. 2008, 475–477. Zhong, R. Y., Q. Y. Dai, T. Qu, G. J. Hu and G. Q. Huang. RFID-enabled Real-time Manufacturing Execution System for Mass-customization Production. Robotics and Computer-Integrated Manufacturing, 2013, 29(2): 283–292. Zhong, R. Y., S. Lan, C. Xu, Q. Dai and G. Q. Huang. Visualization of RFID-enabled shopfloor logistics Big Data in Cloud Manufacturing. The International Journal of Advanced Manufacturing Technology, 2015: 1–12.

Optimization of extraction of polysaccharides from mulberries by using high-intensity Pulsed Electric Fields

Chen, G.Y., C.X. Zhang, Y.H. Luo, Extraction of Polysaccharides from Lycopus lucidus, Chinese Journal of Experimental Traditional Medical Formulae, 17, 38–40. (2011).

Elmaci, Y., T. Altug, Flavour evaluation of three black mulberry (Morus nigra) cultivars using GC M/S, chemical and sensory data. Journal of the Science of Food & Agriculture, 82, 632–635. (2002).

Li, H.S., H.F. Wang, YX Sun, Prelmiinary study on extraction and characteristics of mulberry pigment, Acta Sericologica Sinica, 31, 175–181. (2005).

Li, J.W., X.L. Ding, Study on ultrasonically assisted extraction of polysaccharides from Chinese Jujube, Chemistry and Industry of Forest Products, 26, 73–76. (2006).

Machii, H. Varietal differences of nitrogen and amino acid contents in mulberry leaves, Acta Seric Entomol, 1, 51–61. (1989).

Stress analysis of the interference fit in helical gear transmission

Ding H C, Xiao L J, Zhang H Y, et al. Interference Fit Calculation and Stress Analysis for Rotor Sleeve of High-speed Permanent Magnet Electric Machine Design and Research, 2011, 27(5): 95.

Han C J, Zhang J, Huang G. Temperature Difference Method-based Analysis of Interference Fit between Gear and Shaft. China Petroleum Machinery, 2013, 41(1): 6.

He Y F, Yang X B, Gan W M. Resarch of the interference Fit of Gear and Axis in Press-fit Process. Journal of Mechanical Transmission, 2014, 38(12): 33.

Li S J, Le G, Lin G W, et al. The Research on interference fit between Missile Adapter and Launch Canister. Engineering Mechanics, 2011, 28(4): 245.

Tong J, Yuan D N, Liu H Z, et al. The Reliability Analysis of Motorized Spindle and Motor Rotor with Interference Fit Mechanical Science and Technology for Aerospace Engineering, 2013, 32(6): 845.

Zhang J P, Li C Y. Contact Pressure and Pullout Force Caused by interference Fit Mechanical Engineering & Automation, 2011, (1): 195.

Zhang J S, Yin Y F, Zhao X M, et al. Contact analysis of interference fit between shaft and shaft sleeve based on ANSYS. Journal Of Machine Design, 2014, 31(5): 21.

A review of transformerless DC-DC boost converters for renewable energy sources

Abusara, Mohammad A., and Suleiman M. Sharkh. “Design and control of a grid-connected interleaved inverter.” IEEE Transactions on Power Electronics 28.2 (2013): 748–764.

Chen, Chunliu, Chenghua Wang, and Feng Hong. “Research of an interleaved boost converter with four interleaved boost convert cells.” 2009 Asia Pacific Conference on Postgraduate Research in Microelectronics & Electronics (PrimeAsia). IEEE, 2009. Crews, Ron, and Kim Nielson. “Interleaving is Good for Boost Converters, Too.” Available in: www. powerelectronics.com (2008). Erickson, Robert W., and Dragan Maksimovic. Fundamentals of power electronics. Springer Science & Business Media, 2007. Garth, Dean R., et al. “Multi-phase, 2-kilowatt, high-voltage, regulated power supply.” Power Electronics Specialists Conference, 1971 IEEE. IEEE, 1971. Hu, Xuefeng, and Chunying Gong. “A high voltage gain dc–dc converter integrating coupled-inductor and diode-capacitor techniques.” IEEE Transactions on Power Electronics 29.2 (2014): 789–800. Kim, E-H., and B-H. Kwon. “High step-up resonant pushpull converter with high efficiency.” IET Power Electronics 2.1 (2009): 79–89. Kjaer, Soeren Baekhoej, John K. Pedersen, and Frede Blaabjerg. “A review of single-phase grid-connected inverters for photovoltaic modules.” IEEE transactions on industry applications 41.5 (2005): 1292–1306. Klimczak, Pawel, and Stig Munk-Nielsen. “Comparative study on paralleled vs. scaled dc-dc converters in high voltage gain applications.” Power Electronics and Motion Control Conference, 2008. EPE-PEMC 2008. 13th. IEEE, 2008. Li, Weichen, et al. “A non-isolated high step-up converter with built-in transformer derived from its isolated counterpart.” IECON 2010–36th Annual Conference on IEEE Industrial Electronics Society. IEEE, 2010. Li, Wuhua, et al. “Application summarization of coupled inductors in DC/DC converters.” Applied Power Electronics Conference and Exposition, 2009. APEC 2009. Twenty-Fourth Annual IEEE. IEEE, 2009. Li, Wuhua, et al. “Interleaved converter with voltage multiplier cell for high step-up and high-efficiency conversion.” IEEE Transactions on Power Electronics 25.9 (2010): 2397–2408. Mohan, Ned, and Tore M. Undeland. Power electronics: converters, applications, and design. John Wiley & Sons, 2007. Park, Sang-Hoon, et al. “Analysis and design of a softswitching boost converter with an HI-bridge auxiliary resonant circuit.” IEEE Transactions on Power electronics 25.8 (2010): 2142–2149. Qian, Wei, et al. “A multilevel dc-dc converter with high voltage gain and reduced component rating and count." Applied Power Electronics Conference and Exposition (APEC), 2011 Twenty-Sixth Annual IEEE. IEEE, 2011. Silva, Felinto SF, et al. "High gain DC-DC boost converter with a coupling inductor." 2009 Brazilian Power Electronics Conference. IEEE, 2009. Yu, Wensong, et al. "High efficiency converter with charge pump and coupled inductor for wide input photovoltaic AC module applications." 2009 IEEE Energy Conversion Congress and Exposition. IEEE, 2009. Zhao, Qun, and Fred C. Lee. "High-efficiency, high step-up DC-DC converters." IEEE Transactions on Power Electronics 18.1 (2003): 65–73.

The linear fatigue cumulative damage analysis of the welding seam

AAR. Manual of Standard and Recommended Practices Section C Part II: Specifications for Design, Fabrication and Construcion of Freight Cars [S].

Andrew Halfpenny. Fatigue Lifecycle Estimation base on Power Spectrul Density signal [J]. China Mechanical Engineering, 1998, 9(11):16–19.

AWS. AWS D1.1/D1.1M-2006 Structural Welding Codes Steel [S].

BSI. BS7608-1993 Code of Practice for Fatigue Design and Assessment of Steel Structural [S]. Chen chuanyao, Fatigue and Fracture [M], Wuhan: Huazhong University of Science & Technology Press, 2005:17–21. GB 50017-2003, Code for design of steel structures [S]. Hobbacher A F. The NEW IIW Fatigue Design Recommendations Newly Revised and Expanded [J]. Welding in the World, 2007, 51(1):243–254. ISO16750-3-2012, Road Vehicles—Environmental conditions and testing for electrical and electronic equipment—part 3: mechanical loads [S]. JSSC, Fatigue Design Recommendations for Steel Structures [S]. Li Chao. A Approach Based on Power Spectral Densiyt for Fatigue Life Estimation [J]. Machine Design and Research, 2005, 21(5):6–8. Qin datong, Xie liyang. Modern handbook of mechanical design [M]. Beijing, Chemical Industry Press, 2013. Zhang Li, Lin Jianlong, Xiang huiyu. Modal Analysis and Test [M]. Beijing, Tsinghua University Press, 2011. Zhang Lijun, He Hui. Vehicle Radom Vibration [M]. She n yang, Dongbei University Press, 2007. Zhang yanhua. Welded structural fatigue analysis [M]. Beijing, Chemical Industry Press, 2013. Zhao shaobian, Wang zhongbao, Fatigue Analysis [M]. Beijing, China Machine Press, 1993:13–17.

Application of wavelet analysis and resonance demodulation in mechanical fault diagnosis

Wang Ziyu, Kong Fangrang. The extraction of fault feature of rolling bearing-based on resonance demodulation and wavelet analysis [J]. Modern Manufacturing Engineering, 2012, 1, 117-121.

Wang Ziyu. Rolling Bearing's Breakdown Feature Extraction Technology Based on Wavelet Analysis [D], He Fei: University of Science and Technology of China, 2011.

Wensheng Su. Research on Rolling Element Bearing Vibration Signal Processing ang Fearure Extraction Method [D]. Da Lian: Dalian University of Technology, 2012.

Wenyi Wang. Early Detection of Gear Tooth Cracking Using the Resonance Demodulation Technique [C]. Mechanical Systems and Signal Processing, 2001:887-903.

Zhang Xiong-xi, Liu Zhen-xing. Application of resonance demodulation and wavelet denosingin fault diagnosis of induction motors [J]. Electric Machines and Control. 2010, 14(6), 66-70.

A study on the modeling of the slider-crank mechanism based on parameter identification

Ai Zhihao. Dynamic modeling and parameters estimation of slider-crank mechanism [D]. Hunan University of Technology, 2008. Bai Zhengfeng. Research on dynamic characteristics of mechanism with joint clearance [D]. Harbin Institute of Technology, 2011. Ding Feng, Ding Tao, Xiao DeYun, Yang Jiaben. Founded convergence of finite data window least squares identification for time-varying systems [J]. Act automatic science, 05, 754–761(2002). Ding Feng. System identification. Part C: Identification accuracy and basic problems [J]. Journal of Nanjing University of Information Science and Technology: Natural Science Edition, 03, 193–226(2011). Liu Shanlin, Hu Penghao. A kinetic characteristic analysis of slider-crank mechanism and simulation realization [J]. Machinery Design & Manufacture, 05, 79–80(2008). Luo Jiman, Sun Zhili. Research on the motion reliability design model of slider-crank mechanism [J]. Mechanical science and technology, 21(6), 959-960(2002). Shen Jiang, Wang Xiangjiang. Dynamic modeling and error compensation of slider crank mechanism withclearance [J]. Modern Machinery, 06, 7–8(2015). Shen Jiang. Modeling and precise motion control considering the gap slider crank mechanism [D]. University of South China. 2015. Yang Dan. Modeling and control for nonlinear systems with hysteresis [D]. University of south china, 2014. Zhang You. Dynamic modeling and analysis of crankslider mechanism with kinematic pair clearance [D]. Harbin Institute of Technology, 2012.

Dunlop, A.J. AGC response and target glint. Communications, Radar and Signal Processing, IEE Proceedings F. 182, 83 (1981).

Guoying C. A statistical model of radar target glint based on discrete differenced gaussian noise. Antennas and Propagation Society Int. Symp. 1418 (1996).

Han F. TMS320F281xDSP Principle and application technology. (Beijing, Qinghua university press, 2009).

Kim, S., J. So, et al. Characterization of material emissivity using 4-Stokes W-band radiometer. IGARSS, 2013 IEEE International. 3014 (2013).

Liu H., Yang X. and Jiang H. The study of mono-pulse angle measurement based on digital array radar. Radar Conference 2013, IET Int. 1 (2013).

Li X., Li Y. The basement of millimeter wave near sensing techniques. (Beijing, Beijing institute of technology press, 2009).

Ma Z., Cui W. Angle measurement performance analysis and simulation of sum and difference phase-comparison monopulse radar. Radar Conference, 2009 IET, 1(2009).

Sato, M. Compact receiver module for a 94 GHz band passive millimetre-wave imager. Microwaves, Antennas & Propagation, IET. 2, 848 (2008).

Sherman S M. Mono pulse principles and techniques. (Dedham, MA: Artech House, 1984).

Zhou, W., J. Xie, et al. Angle measurement accuracy analysis of sum-difference amplitude-comparison monopulse in onshore or shipborne ISAR. DSP 2014 19th Int. Conf. on IEEE. 531 (2014).

10 Tension control methodology of active continuous discharge and intermittent reciprocating work based on master-slave synchronous motion

Albert W.-J. Hsue, M.-T. Yan, S.-H. Ke, JMPT Comparison on linear synchronous motors and conventional rotary motors driven Wire-EDM processes, 192–193 478–485 (2007).

Chen, C.L., K.M. Chang, C.M. Chang, AMM, Modeling and control of a web-fed machine. 28 863–876(2004).

Chen, S.L., T.H. Hsieh, IJMTM, Repetitive control design and implementation for linear motor machine tool. 47 1807–1816 (2007).

Ding, K., Q.L. Han, JSV, Master-slave synchronization criteria for horizontal platform systems using time delay feedback control. 330 2419–2436 (2011).

Hast, M., T. Hägglund, Journal of Process Control, Loworder feedforward controllers: Optimal performance and practical considerations. 24 1462–1471 (2014). Kang, H.K., C.W. Lee, K.H. Shin, Journal of Process Control, A novel cross directional register modeling and feedforward control in multi-layer roll-to-roll printing. 20 643–652 (2010). Lee, C., H. Kang, K. Shin, IJMS, Advanced taper tension method for the performance improvement of a roll-toroll printing production line with a winding process. 59 61–72 (2012). Li, H.Z., M.D. Le, Z.M. Gong, W. Lin, IEEE-ASME T MECH, Motion Profile Design to Reduce Residual Vibration of High-Speed Positioning Stages, 14-2 264–270 (2009). Liang, Z., J. Huang, P I MECH ENG C-J MEC, Design of high-speed cam profiles for vibration reduction using command smoothing technique, 228(18) 3322–3328 (2014). Park, J.C., S.W. Jeon, K.S. Nam, L. Liu, J. Sun, C.H. Kim, JJAP, Tension control of web of winder span using adaptive gain control method. 53, 05HC11-1- 05HC11-7 (2014). Salarieh, H., M. Shahrokhi. JCAM, Multi-synchronization of chaos via linear output feedback strategy. 223 842–852 (2009). Wua, X.F., J.P. Cai, M.H. Wang, JSV, Master-slave chaos synchronization criteria for the horizontal platform systems via linear state error feedback. 295 378–387 (2006). Yang, X.J., D. Lu, J. Zhang, W.H. Zhao, IJMTM, Dynamic electromechanical coupling resulting from the air-gap fluctuation of the linear motor in machine tools, 94 100–108 (2015). Zheng, S.Q., R. Feng, JSV Feedforward compensation control of rotor imbalance for high-speed magnetically suspended centrifugal compressors using a novel adaptive notch filter. 366 1–14 (2016).

Design and kinematics analysis of a novel liquid-brewing steamer feeding robot

Gu, Z.Y. Status and trend of global industrial robot industry, Mechanical and electrical integration, 2, (2006). Hu, H.Q., H.R. Fang, J.B. Peng, Y.Z. Yang, H. Chen, Singularityanalysis of robot, Robot Technology and Application, 6, (2001). Li, H., Y. Hua, Design of mechanical steaming bucket feeding control system based on PLC, Food and mechinery, 31, 114–118. (2015). Liu, S.Z., Y.Q. Yu, J.X. Yang, L.Y. Su, Kinematic and dynamic analysis of a three-degree-of-freedom parallel manipulator, Journal of Mechanical Engineering, 45 (2009). Qian, C., Y.H. Qian, X. Zhang, H.B. Ma, J. Xu, X. Fan, Y. Zhang, Application progess of mechanical automation liquor-production technologies, China brewing, 32, 5–9 (2013). Serdar Kucuk, Zafer Bingul, Inverse kinematics solutions for industrial robot manipulators with offset wrists, Mathematical Modeling, 38: 1983–1999 (2014). Tian, H.B., H.W. Ma, J. Wei, Workspace and structural parameters analysis for manipulator of serial robot, Chinese Journal of agricultural machinery, (2013). Wang, J.Z., S.Q. Liu, The technique of solid liquor feeding, Liquor-making ScienceTechnology, 2, 18–21, (1992). Zhang, L.D., T.D. Meng, J.P. Tian, Y.Hu, H.S. Yang, automatic steamer distillation apparatus for Nongxiang liquor by solide-state fermentation, Liquor-making ScienceTechnology, 9, 94–99, (2015).

Design and simulation analysis of a new type of multi-gear pump

Table 2. The outlet's mean flow velocities of Class III multi-pumps.

Outlet	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
Mean flow velocity (m/s)	1.388	1.382	1.396	1.397	1.383	1.384

A study on the torsional fatigue fracture location of steel wires

Cai, L.G., S.M. Ma, Y.S. Zhao, Journal of Mechanical Engineering, 48, 165-168(2012).

Kong, K.L., J.J. Li, Journal of Applied Statistics and Management 32, 145-148(2011).

Li, H.F., J.C. Wu, J.B. Liu, Y.B. Liang, China Mechanical Engineering 3, 368-371(2012).

Li, X., J.M. Liu, Y.H. Jin, Statistical Research 17, 43-46 (2010).

Lv, J., Z.J. Wang, Z.R. Wang, Journal of Harbin Institute of Technology 33, 485-488(2001).

Shao, C.X. Study on the Torsional Fatigue Test Method and Test Prototype of Spring Steel Wires, 23, (2013).

Song, S.Y., F. Yin, Machinery Design & Manufacture 8, 63-66(2012).

Xia, S.L., J.W. He, Aircraft Design 28, 10-13(2015).

Xie, X.L., W.L. peng, R. qin, China Journal of Highway Transport 14, 33-36(2006).

Zeng, G. Science Technology and Industry 8, 73-76(2008)

Zhang, L.F. Value Engineering 13, 208-211(2014).

Zhang, Y.H., H.H. Liu, D.C. Wang, Spring Manual (1997).

The lightweight design of the support arm

Cheng Chang, Airong Chen, The gradient projection method for structural topology optimization including density-dependent force[J]. Structural and Multidisciplinary Optimization, 2014.10, Vol. 50(4), pp: 645–657. Hans-Willi Raedt, Frank Wilke, Christian-Simon Ernst, The Lightweight Forging Initiative Automotive Lightweight Design Potential with Forging[J] ATZ worldwide, March 2014, Volume 116, Issue 3, pp: 40–45. Kawamura, H., H. Ohmori, N. Kito, Truss topology optimization by a modified genetic algorithm [J]. Structural and Multidisciplinary Optimization, 2002.07, Vol. 23(6), pp: 467–473. Kim, H., O.M. Querin, G.P. Steven, Y.M. Xie, A method for varying the number of cavities in an optimized topology using Evolutionary Structural Optimization[J]. Structural and Multidisciplinary Optimization, 2000.04, Vol. 19(2), pp: 140–147. Kirsch, U., Optimal topologies of structures [J]. Applied Mechanics Review, 1989, 42:223–249. Koo*, J.S. and H.J. Cho, Theoretical method for predicting the weight reduction rate of a box-type car body for rolling stock by material substitution design, International Journal of Automotive Technology, 2009, Vol. 10 No. 3, pp: 355–363. Krister Svanberg, Mats Werme, On the validity of using small positive lower bounds on design variables in discrete topology optimization[J]. Structural and Multidisciplinary Optimization, January 2009, Volume 37, Issue 4, pp: 325–334. Lan Fengchong, Zhuang Liangpiao, Zhong Yang, Chen Jiqing & Wei Xingmin, Study and Practice of Car Body Struture Lightweight Design[J]. Automotive Engineering, 2010.09 Vol. 32, pp: 763–768, 733 (In Chinese). Leite, M., A. Silva, E. Henriques, J.F.A. Madeira, Materials selection for a set of multiple parts considering manufacturing costs and weight reduction with structural is performance using direct multisearch optimization[J]. Structural and Multidisciplinary Optimization, 2015.10, Vol. 52 (4), pp: 635–644. Michael Hamacher, Lutz Eckstein, Birger Queckenstedt, Klaus Holz, Intelligent Trailer in lightweight Design[J], ATZ worldwide, May 2013, Vol. 115(5), pp: 22–25. Nikos T. Kaminakis, Georgios A. Drosopoulos, Georgios E. Stavroulakis, Design and verification of auxetic microstructures using topology optimization and homogenization[J]. Archive of Applied Mechanics, 2015.09, Vol. 85 (9), pp: 1289–1306. Pan F, Zhu P, Zhang Y. Met model-based lightweight design of B-pillar with TWB structure via support vector regression [J]. Computers and Structures, 2010, 88(1-2), 36–44. Stolpe M, Svanberg K. An alternative interpolation scheme for minimum compliance topology optimization. Structural and Multidiscipline

Optimization, 2001, 22: 116-124. Sun Kang, Jin Chaofeng, Wu Xin, Dynamic and static multi-objective optimization of the activity crossbeam based on response surface method[J]. Manufacturing Technology & Machine Tool, 2015.12, pp: 71-76 (In Chinese). Thomas Muhr, Johannes Weber, Andreas Theobald, Martin Hillebrecht, Economically Viable Lightweight Design Concept for a Hybrid B-pillar [J]. ATZ worldwide, March 2015, Vol.117(3), pp: 4-9.

Figure 7. Graph showing the quality and stress of each

scheme.

Figure 8. Graphs showing deformation-stress after

optimization.

An analysis of the thermal elastohydrodynamic lubrication performance of the slope of the thrust bearing

Figure 6. Variation curve of the minimum oil film

thickness with specific pressure.

Figure 7. Variation curve of the maximum oil film tem

perature with specific pressure.

Figure 8. Variation curve of the maximum oil film pres

sure with specific pressure.

Figure 9. Variation curve of the power consumption

with specific pressure. Yan Qin Zhang, Wei Wei Li, Li Guo Fan: Simulation and Experimental Analysis of Influence of Inlet Flow on Heavy Hydrostatic Bearing Temperature Field, Asian Journal of Chemistry, 26(17), 5478, (2014). Yanqin Zhang, Weiwei Li, Zeyang Yu: Flow Criterion Research on Fluid In Hydrostatic Bearing From Laminar to Turbulent Transition, International Journal of Hybrid Information Technology, 7(3), 369, (2014). Yanqin Zhang, Yao Chen, Zeyang Yu: Influence of Strengthening Rib Location on Temperature Distribution of Heavy Vertical Lathe Worktable, International Journal of u- and e- Service, Science and Technology, 7(1), 65, (2014). Yoshimoto S, Anno Y, Fujimora M: Static Characteristics of a Rectangular Hydrostatic Thrust Bearing With a Self-Controlled Restrictor Employing a Floating Disk. ASME J. of Tribo. 115, 307, (1993). Younes YK: A revised design of annular hydrostatic bearings for optimal pumping power. Tribo. Int. 26(3), 195, (1993). Zhang Yan-Qin, Fan Li-Guo: Simulation and Experimental Analysis on Supporting Characteristics of Multiple Oil Pad Hydrostatic Bearing Disk, J. of Hydrodynamics, 25(2), 236–241, (2013). Zhang Yanqin, Yu Zeyang, Chen Yao: Simulation and Experimental Study of Lubrication Characteristics of Vertical Hydrostatic Guide Rail, High Technology Letters, 2014, 20(3), 315–320. Zhu Jun. Failure Analysis of Thrust Bearing for Hydraulic Turbine Units [J]. Electrical Technology, 1990 (3): 13–17.

Simulation of submarine underwater motion with an external weapon module

Figure 19. Comparison locus curves of the spatial helical motion.

Table 2. Contrast on performance indexes of spatial maneuverability before and after carrying the weapon module.

	Rotation diameter/m	Rotation period/s	Lift distance/m	Relative lift velocity/ $m \cdot s^{-1}$
Before	460.1	402.8	226.6	0.5626
After	485.1	421.4	230.1	0.5462

A multi-objective NC drilling parameter optimization model to achieve low energy consumption and costs

Table 2. The optimization results of APSO.

Results	$\lambda_C = 1$	$\lambda_E = 1$	$\lambda_C = \lambda_E = 0.5$
Drilling speed (m/min)	24.05	27.09	26.18
Feed rate per turn (mm/r)	0.24	0.24	0.24
Time (s)	13.72	12.17	12.60
Cost (yuan)	0.881	0.918	0.901
Energy consumption (kJ)	207.80	207.63	207.66

An experimental study of the dynamic equivalence leakage of rolling-piston compressors

Table 3. The Δni and ΔPi experimental data.

Constant condition Speed (Δn) Leakage (m 1 (g / s))

δ 1 = 15 μm

ΔP 1 = 0.1 MPa Δn 1 = 1000 r/min 0.4127 Δn 2 = 2000 r/min 0.4344 Δn 3 = 3000 r/min 0.4452

δ 1 = 15 μm

ΔP 2 = 0.2 MPa Δn 1 = 1000 r/min 0.5048 Δn 2 = 2000 r/min 0.5576 Δn 3 = 3000 r/min 0.5644

δ 1 = 15 μm

ΔP 3 = 0.3 MPa Δn 1 = 1000 r/min 0.5925 Δn 2 = 2000 r/min 0.6076 Δn 3 = 3000 r/min 0.6507

The structure and transmission efficiency analysis research of a new pattern F2C-T pin-cycloid planetary transmission

Eccentricity α 2 Width of the cycloid gear b 14

Tooth number of the cycloid gear Z c 27 Input gear's shaft teeth number Z 1 12

Pin gear's teeth number Z p 28 Planet gear's teeth number Z 2 36

Pin gear's center circle radius r p 90 Transmission ratio i 16 81

Pin gear's radius r rp 3.5 Tooth difference c 2

Module m 2 Figure 3. Basic parameter interface. Figure 4. Transmission efficiency calculation interface.

A study on surface zinc plating and heat treatment of welding gears

Figure 3. SEM image of the coating.

Table 4. List of coating components.

Element	Mass fraction/%	Atomic number fraction/%
Zn	95.17	94.61
Fe	4.83	5.39

Development and application of a test platform for a battery management system

Figure 6. Current pulse curve.

Figure 7. Photo of a BMS HIL test platform product.

Experimental study on yarn friction slip in the yarn pull-out test

Bazhenov S. Dissipation of energy by bulletproof aramid fabric. Journal of Materials Science. 1997, 32(15): 4167–4173.

Bilisik K, Korkmaz M. Single and multiple yarn pull-outs on aramid woven fabric structures. Textile Research Journal. 2010, 81(8): 847–864.

Bilisik K. Experimental determination of fabric shear by yarn pull-out method. Textile Research Journal. 2011, 82(10): 1050–1064.

Carr DJ. Failure mechanisms of yarns subjected to ballistic impact. Journal of Materials Science Letters. 1999, 18(7): 585–588. Dolatabadi MK, Kovař R, Linka A. Geometry of plain weave fabric under shear deformation. Part I: measurement of exterior positions of yarns [J]. Journal of the Textile Institute. 2009, 100(4): 368–380. Dong Z, Sun CT. Testing and modeling of yarn pull-out in plain woven Kevlar fabrics [J]. Composites Part A: Applied Science and Manufacturing. 2009, 40(12): 1863–1869. Duan Y, Keefe M, Bogettic TA, Cheeseman BA. Modeling friction effects on the ballistic impact behavior of a single-ply high-strength fabric. International Journal of Impact Engineering. 2005, 31(8): 996–1012. Nilakantan G, Gillespie JW. Yarn pull-out behavior of plain woven Kevlar fabrics: Effect of yarn sizing, pullout rate, and fabric pre-tension [J]. Composite Structures. 2013, 101(15): 215–224. Zhu D, Soranakom C, Mobasher B, Rajan SD. Experimental study and modeling of single yarn pull-out behavior of Kevlar 49 fabric [J]. Composites Part A: Applied Science and Manufacturing. 2011, 42(7): 868–879.

Analysis and research into the effect of dithering technology on ADC's SNR

Figure 2. The block diagram of the simulation system

without dithering.

Figure 3. The block diagram of the simulation system

with dithering. Figure 4. The ADC quantization output graph without dithering. Figure 5. The ADC quantization output graph with dithering.

Design and implementation of a CANopen master stack for servomotor controllers in a 6-DoF manipulator

CiA 301 version 4.2.0. at <http://www.canopen.org/standardization/specifications/>

Duan, J., Xiao, J. & Zhang, M. Framework of CANopen Protocol for a Hybrid Electric Vehicle. in 2007 IEEE Intell. Veh. Symp. 906–911 (2007). doi:10.1109/IVS.2007.4290232

Farsi, M., Ratcliff, K. & Barbosa, M. An introduction to CANopen. Comput. Control Eng. J. 10, 161–168 (1999). Gold Board Level Module Hardware Manual Ver. 1.002. (2015). at

Design of a crane intelligent control system

Figure 4. Flow chart of the PLC control system.

Valve clearance fault diagnosis of an internal combustion engine based on wavelet packets and k-nearest neighbors

Table 2. The comparison of accuracy and running time for different k.

k	Time (s)	Accuracy
2	2.2581	90.0%
3	2.2596	92.5%
4	2.2624	95.0%
5	2.2773	95.0%
6	2.2819	92.5%
7	2.2822	92.5%
8	2.2974	95.0%
9	2.3108	95.0%
10	2.3161	95.0%
13	2.3303	92.5%
17	2.4062	95.0%

Table 3. Comparison of diagnosis data for four algorithms.

Algorithm	Time (s)	Accuracy
BPNN	1.6356	90.0%
SVM	2.4973	92.5%
LSSVM	2.7926	95.0%
kNN	2.3108	95.0%

Lei, Y., J. Lin, Z. He, et al. “Application of an improved kurtogram method for fault diagnosis of rolling element bearings,” Mechanical Systems & Signal Processing, vol. 25, no. 5, pp. 1738–1749, Jul. 2011. Li, G., D.Y. Cai, S. Wang and H. Bai, “Application of EMD and SOM Neural Network in Gas Engine Fault Diagnosis,” Compressor Technology, vol. 1, no. 2, pp. 31–34, Feb. 2011. Mohammadpour, J., M. Franchek, K. Grigoriadis. "A survey on diagnostics methods for automotive engines," Proceedings of the American Control Conference 47(3): 985–990, May. 2011. Pons-Llinares, J., J.A. Antonino-Daviu, M. Riera-Guasp, et al. "Induction Motor Diagnosis Based on a Transient Current Analytic Wavelet Transform via Frequency B-Splines," IEEE Transactions on Industrial Electronics, vol. 58 no. 5, pp. 1530–1544, May. 2011. Si, J.P., J.H. Liu, L.N. Guo and J.C. Ma, "Application of EEMD and SVM in Engine Fault Diagnosis," Vehicle Engine, Serial no. 1, pp. 81–86, Feb. 2012. Tang, B., W. Liu, T. Song. "Wind turbine fault diagnosis based on Morlet wavelet transformation and WignerVille distribution," Renewable Energy, vol. 35, no. 12, pp. 2862–2866, Bec. 2010. Wang, Z.P., W. Wang, X.Y. Li and J. Zhang, "Fault Diagnosis of Engine Valve Based on EMD and Artificial Neural Network," Transactions of the Chinese Society for Agricultural, vol. 38, no. 12, pp. 133–136, Dec. 2007. Wu, J.D., J.B. Chain, C.W. Chung, et al. "Fault Analysis of Engine Timing Gear and Valve Clearance Using Discrete Wavelet and a Support Vector Machine," International Journal of Computer Theory & Engineering, vol. 4, no. 489, pp. 386–390, Apr. 2012. Wu, J.D., J.B. Jian, C.W. Chen and Y. Hao, "Fault Analysis of Engine Timing Gear and Valve Clearance Using Discrete Wavelet and a Support Vector Machine," International Journal of Computer Theory & Engineering, vol. 4, no. 3, pp. 386–390, June. 2012. Yang, L., H.S. Kang, Y.C. Zhou, et al. "Intelligent Discrimination of Failure Modes in Thermal Barrier Coatings: Wavelet Transform and Neural Network Analysis of Acoustic Emission Signals," Experimental Mechanics, vol. 55, no. 2, pp. 321–330, Oct. 2014.

RV reducer dynamic and static performance test system design

Fengshou Z, Linlin Z, Jianting L, Peng Z, Journal of Mechanical Transmission, 08(2014).

Gola C, Davoli P, Rosa F, Journal of Mechanical Design, 130, 11(2008).

Predrag Z, Journal of Machine Design, (2007).

Qi L, Xinhui Wu, Weridong H, Journal of Mechanical Transmission, 04(2016).

Shidang Y, Zhongming L, Journal of Modern Manufacturing Engineering, 11(2015).

Xichang L, Hongzhan L, Journal of Mechanical Engineering, 07(2011).

Analysis of automotive suspension compliance based on the main effects of rubber bushing

0.03406 ≈0.03442 2.958 -0.0480 ≈-0.0358 1.37 — — —

-42.02% ≈0 57.73% 10.34% ≈0 37.00% — — —

Experimental and simulation research on the friction and wear properties of surface textured friction pairs in CST

Borghi, A., E. Gualtieri, D. Marchetto, et al. Wear, 265, 1046-1051(2008).

Chen, L., H. Zhou, Y. Zhao, et al. Journal of Mechanical Engineering, 44, 173-176(2008).

Etsion, I., G. Halperin, V. Brizmer, Y. Kligerman. Tribology Letters, 2, 295-300(2004).

Etsion. I. Tribology Letters, 17, 733-737(2004).

Huang, J.M., Ch. H. Gao, X. Sh. Tang, et al. Journal of Mechanical Engineering, 44, 145-151(2008).

Jia. B.Y. Master diss., Jilin University, (2008). Jovicic, G., Zivkovic, M., Jovicic, N. Strojniski VestnikJournal of Mechanical Engineering, 55, 549-554(2009). Kligerman, Y., I. Etsion. Tribology Transactions, 44, 472-478(2001). Ren, L.Q., Zh. J. Yang, Zh. W. Han. Transactions of the Chinese Society for Agricultural Machinery, 36, 144-147(2005). Rusinski, E., Moczko, P., Pietrusiak, D., et al. Strojniski Vestnik-Journal of Mechanical Engineering, 59, 556-563(2013). Song, Q.F., H. Zhou, Y. Li, et al. Tribology, 26, 24-27(2006). Wakuda M, Yamauchi Y, Kanzaki S, et al. Wear, 254, 356-363(2003). Wang, X.L., K. Kato, K. Adachi, et al. Tribology International, 34, 703-711(2001). Zh. J. Yang, Zh. W. Han, L.Q. Ren. Tribology, 25, 374-378(2005).

Simulation and analysis of MPPT used in photovoltaic grid-connected systems based on the improved disturb-and-observe method

Chen Huanglin, MPPT algorithm research based on mathematical model of PV module, Mechanical & Electrical Technology. 5 (2013) 27-29.

Huang Shuyu, Mou Longhua, Shi Lin, Adaptive variable step size MPPT algorithm, Proceedings of the CSU EPSA. 5 (2011) 26-30.

Jiang Zheng, Simulation of three-phase photovoltaic grid-connected system based on matlab/simulink, Power System and Clean Energy. 10 (2013) 59-65.

Liu Li, Zhang Yanmin, Application of perturbation and observation method in MPPT of photovoltaic power generation, Chinese Journal of Power Sources. 34 (2010) 186-189.

Liu Lihong, Chen Qizheng, MPPT simulation research for PV module based on boost circuit, Electrical Engineering. 5 (2011) 26-30.

Lu Xiao, Qin Lijun, Application and simulation of adaptive perturbation and observation method in PV MPPT, Modem Electric Powar. 28 (2011) 80-84.

Min Jiangwei, Duan shanxu, et al, Photovoltaic maximum power point tracking system based on push-pull converter, Telecom Power Technologies. 2 (2006) 7-9.

Wang Liqiao, Sun Xiaofeng, Photovoltaic power generation technology in the distributed generation system, Mechanical Industry Press, Beijing, 2014.

Wu Yuwei, Shibin, et al, Photovoltaic array maximum power point tracking based on improved variable step P&O, Electrical Engineering. 6 (2014) 23-25.

Zhao Hong, Pan Junmin, Photovoltaic maximum power point tracking system using boost converter, Telecom Power Technologies. 3 (2004) 55-57.

Automatic control loop optimization method of thermal power plant based on internal model control

Figure 7. Control flow of optimization method.

Figure 8. Data trend of feed-water control loop after

optimization.

Multidisciplinary optimization and parameter analysis of the in-wheel permanent magnet synchronous motor of a tram

Alexande, K., & Donald, G. (1983). Control means for minimization of losses in AC and DC Moto drives. J. IEEETrans.onIA., 13(4):561-57.

AN Yue-jun, Zhao Wen-qing, Xue Li-ping, & Li Yong (2011). Pole width modulation method and its experimental research for reduce cogging torque of permanent magnet motor. J. Electric Machines and Control, 2011(10).

Chen Yiguang, Pan Yuling, & He Xin. (2010). Magnetomotive Force in Permanent Magnet Synchronous Machine With Concentrated Fractional-Slot Winding. J. Transactions of China Electrotechnical Society. 30-36.

Huang Fenlian, Ji Wei, & Zhang Lu. (2012). Optimization of valve timing and injection advance angle of diesel engine based on OPTIMUS. J. Transactions of the CSAE. 28(15): 27-32.

Kim, H.G., Sul, S, K., & Park, M.H. (1984). Optimal efficiency drive of a current source inverter fed induction motor by flux control. J. IEEETrans. OnIA., 20(6):1453-1459.

Wang Aimeng (2010). Optimal IPM Machine Design and Flux-weakening Control. D. North China Electric Power University.

Yang Haodong, & Chen Yangsheng. (2011). Electromagnetic Vibration Analysis and Suppression of Permanent Magnet Synchronous Motor with Fractional Slot Combination. J. Proceedings of the CSEE. 83-86.

Zhou Jun-jie, Fan Cheng-zhi, Ye Yun-yue, & Lu Qin-fen (2011). Method for reducing cogging torque based on magnet skewing in disc-type permanent magnet motors. J. Journal of Zhejiang University (Engineering Science). 2011(10).

Dynamic simulation and muzzle vibration analysis of vehicle-mounted automatic mortar

Figure 3. The muzzle dynamic simulation results in the single-shot condition. Every curve means:

(a) Change of rotation angle of muzzle axis in the vertical plane.

(b) Displacement of the muzzle center in the vertical direction.

(c) Displacement of the muzzle center in the front-back direction.

(d) The distance between projectile and the muzzle center.

Numerical simulation of aspheric glass lens during the non-isothermal molding process

Table 2. The stress field of the isothermal and non

isothermal molding.

Type of lens/MPa of

mold/MPa Maximum stress Maximum stress

Isothermal molding 16.56 51.54

Non-isothermal molding 22.45 39.94

Temperature field analysis of a porous modified concrete composite pavement

Bentz D P, Martys N S. A Stokes permeability solver for three-dimensional porous media[M]. Gaithersburg, MD, USA: US Department of Commerce, Technology Administration, National Institute of Standards and Technology, 2007. Bhutta m, Tsurutak, Mirza J. Evaluation of high performance porous concrete propoties [J]. Contruction and Building Material, 2013, 31(6):67-73. Elmer C. Hansen. Field effects of water pumping beneath concrete pavement slabs[J]. Journal of Transportation Engineering, 2013, 117(6):679-697. Huang Hui. Study on thermal properties and testing methods of asphalt and asphalt mixture [D] Changsha: Changsha University of Science and Technology 2010. Tennis P D, Leming M L, Akers D J. Pervious concrete pavements[M]. Skokie, IL: Portland Cement Association, 2004.

A retrieval method based on a CBR finite element template

Aamodt A, Plaza E. Case-based reasoning: Foundation issues, methodological variations, and system approaches[J]. AI Communications, 1994, 7(1): 39–59.

Beddoe G R, Petrovic S. Selecting and weighting features using a genetic algorithm in a case-based reasoning approach to personnel rostering[J]. European Journal of Operational Research, 2006, 175(2):649–671.

CBR database organization and retrieval method based on semantic understanding and FCA [J]. Journal of Guilin University of Technology, vol. 35, No. 2. 5, 2015. 383–390.

Hunt J. Evolutionary Case Based Design[M]//Progress in Cased-Based Reasoning. Berlin, Heidelberg: Springer, 1995: 17–31.

Kobit Z, Chen D, Baljeu A. A Domain Ontology Model for Mould Design Automation[M]//Advances in Artificial Intelligence. Berlin, Heidelberg: Springer, 2010:336–339.

Li feng, Wei ying. Approach to Case Retrieval in Distributed Environment Based on Semantic Similarity Caculation [J]. Computer Engineering. Vol. 33, No. 9. May 2007.

Lu Ying, Li Qiming. Construction of accident case database for subway operation based on casebased reasoning[J]. JOURNAL OF SOUTHEAST UNIVERSITY(Natural Science Edition), 2015, 9.45(7): 990–995..

Reisbeck C K, Schank R C. Inside Case Based Reasoning[M]. Hillsdale:Lawrence Erlbaum Associates, 1989.

Sha Zhongyong, Shi Zhongxian. Case Retrieval Mathods of Public Crisis Based on Semantic Similarity[J]. Information and Documentation Services, 2014, 6: 5–11.

Improved reduction of graphene oxide through femtosecond laser pulse trains

Figure 6. Raman spectra of GO and 2M-rGO with dif

ferent delay times.

A nanoparticle-decorated silicon substrate for SERS via circularly polarized laser one-step irradiation

Baia, M., Baia, L., Astilean, S., et al. 2006. Surfaceenhanced Raman scattering efficiency of truncated tetrahedral Ag nanoparticle arrays mediated by electronic couplings. Applied Physics Letters: 88(14):143121-143121-3.

Cialla, D., März, A., Böhme, R., et al. 2011. Surfaceenhanced Raman spectroscopy (SERS): progress and trends. Analytical & Bioanalytical Chemistry: 403(1):27-54.

Diebold, E.D., Mack, N.H., Doorn, S.K., et al. 2009. Femtosecond Laser-Nanostructured Substrates for Surface-Enhanced Raman Scattering. Langmuir the Acs Journal of Surfaces & Colloids: 25(3):1790-4. Ding, S.Y., Yi, J., Li, J.F., et al. 2016. Erratum: Nanostructure-based plasmon-enhanced Raman spectroscopy for surface analysis of materials. Nature Reviews Materials: 1. Fleischmann, M., Hendra, P.J. & Mcquillan, A.J. 1974. Raman spectra of pyridine adsorbed at a silver electrode. Chemical Physics Letters: 26(2):163–166. Huang, M., Zhao, F., Cheng, Y., et al. 2008. Large area uniform nanostructures fabricated by direct femtosecond laser ablation. Optics Express: 16(23):19354-65. Jeanmaire, D.L., Duyne, R.P.V., Jeanmaire, D.L., et al. 1977. Surface raman spectroelectrochemistry: Part I. Heterocyclic, aromatic, and aliphatic amines adsorbed on the anodized silver electrode. Journal of Electroanalytical Chemistry & Interfacial Electrochemistry: 84(1):1–20. Jiang, L., Ying, D., Li, X., et al. 2012. Two-step femtosecond laser pulse train fabrication of nanostructured substrates for highly surface-enhanced Raman scattering. Optics Letters: 37(17):3648–50. Jiménez, E., Abderrafi, K., Abargues, R., et al. 2010. Laser-ablation-induced synthesis of SiO2-capped noble metal nanoparticles in a single step. Langmuir: 26(10):7458–63. Kelly, K.L., Coronado, E., Lin, L.Z., et al. 2003. The Optical Properties of Metal Nanoparticles: The Influence of Size, Shape, and Dielectric Environment. Cheminform: 34(16):668–677. Lin, C.H., Jiang, L., Chai, Y.H., et al. 2009. One-step fabrication of nanostructures by femtosecond laser for surface-enhanced Raman scattering. Optics Express: 17(24):21581–9. Varlamova, O., Costache, F., Reif, J., et al. 2006. Selforganized pattern formation upon femtosecond laser ablation by circularly polarized light. Applied Surface Science: 252(13):4702–4706. Wei, H. & Xu, H. 2013. Hot spots in different metal nanostructures for plasmon-enhanced Raman spectroscopy. Nanoscale: 5(22):10794-805. Yang, J., Li, J., Du, Z., et al. 2014. Laser Hybrid Micro/ nano-structuring of Si Surfaces in Air and its Applications for SERS Detection. Scientific Reports: 4:6657-6657. Yang, Q., Li, X., Jiang, L., et al. 2015. Nanopillar arrays with nanoparticles fabricated by a femtosecond laser pulse train for highly sensitive SERRS. Optics Letters: 40(9):2045-8. Yasumaru, N., Miyazaki, K. & Kiuchi, J. 2003. Femtosecond-laser-induced nanostructure formed on hard thin films of TiN and DLC. Applied Physics A: 76(6):983-985. Zhang, N., Li, X., Jiang, L., et al. 2013. Femtosecond double-pulse fabrication of hierarchical nanostructures based on electron dynamics control for high surface-enhanced Raman scattering. Optics Letters: 38(18):3558-61. Zhu, J.T., Shen, Y.F., Li, W., et al. 2006. Effect of polarization on femtosecond laser pulses structuring silicon surface. Applied Surface Science: 252(252):2752-2756.

Table 1. Enhancement factors at different spots.

Raman shift (cm^{-1})	Spot 1	Spot 2	Spot 3	Spot 4
1650	9.89E+06	1.46E+07	2.33E+07	5.96E+07
1510	1.09E+07	1.61E+07	2.56E+07	6.56E+07
1360	1.71E+07	2.10E+07	2.88E+07	7.69E+07
1310	1.30E+07	1.81E+07	2.57E+07	6.03E+07
610	8.09E+06	1.07E+07	1.49E+07	2.54E+07

An experimental study on rotation ultrasound-assisted drilling for high-strength engineering of mechanical connection components

Jing Liu, Deyuan Zhang & Longgang Qin (2012). Feasibility study of the rotary ultrasonic elliptical machining of carbon fiber reinforced plastics. J. Machine Tools and Manufacture, 53, 141-150. Jinyang Xu & Mohamed El Mansoria (2016). Experimental study on drilling mechanisms and strategies of hybrid CFRP/Ti stacks. J. Composite Structures. 157, 461-482. Julian M. Allwood & A. Erman Tekkaya (2015). Writing a good review for the Journal of Materials Processing Technology. J. Materials Processing Technology. 215, 5-7. Jun Cheng, Guoqiang Yin, Quan Wen, Hua Song & Yadong Gong (2015). Study on grinding force modelling and ductile regime propelling technology in micro drill-grinding of hard-brittle materials. J. Materials Processing Technology. 223, 150-163. Liu Yang, Li Pengnan, Chen Ming, Tang Siwen & Yang jin (2015). Comparison of cutting forces and cutting temperatures of two drills in high speed drilling carbon fiber composite. J. Materials for Mechanical Engineering. 39, 36-40. Pei Z J, Ferreira P M & Haselkon M (2005). Plastic flow in rotary ultrasonic machining of ceramics. J. Materials Processing Technology, 48, 771-777. Ren Shunan, Wu Dan & Chen Ken (2013). Thrust force on the main cutting edge when cutting carbon fiber reinforced plastics. J. Tsinghua University (Science and Technology). 53, 487-492. Shivraman Thapliyal & Dheerendra Kumar Dwivedi (2016). Microstructure evolution and tribological behavior of the solid lubricant based surface composite of cast nickel aluminum bronze developed by friction stir processing. J. Materials Processing Technology. 238, 30-38. Wang Jinming, Yang Zhixiang, AoMing, Yang Donjun, Ai huanzhi & zhaoFuling (2006). Study on Machining Processing and Evaluation of Carbon Fiber Reiforeed Composites Cutting Suafrees. C. The 14th National Composites Conference, 1094-1095. Xun Liu, Yong Chae Lim, Yongbing Li, Wei Tang, Yunwu Ma, Zhili Feng & Jun Ni (2016). Effects of process parameters on friction self-piercing riveting of dissimilar materials. J. Materials Processing Technology. 237, 19-30.

Synthesis of PbO nanosheet-based thin films for all-solid-state supercapacitors

Behnoudnia, F. (2012). Synthesis and characterization of novel three-dimensional-cauliflower-like nanostructure of lead(II) oxalate and its thermal decomposition for preparation of PbO. Inorganic Chemistry Communications 24: 32–39.

Didier, M. (2014). Method development for evaluating the redox state of Callovo-Oxfordian clayrock and synthetic montmorillonite for nuclear waste management. Applied Geochemistry 49: 184–191.

Gao, P. (2013). Solvothermal synthesis of alpha-PbO from lead dioxide and its electrochemical performance as a positive electrode material. Journal of Power Sources 242: 299–304.

Ghasemi, S. (2008). Sonochemical-assisted synthesis of nano-structured lead dioxide. Ultrasonics Sonochemistry 15(4): 448–455.

Li, L. (2012). Preparation and characterization of nanostructured lead oxide from spent lead acid battery paste. Journal of Hazardous Materials 203: 274–282.

Liu, C. G. (2010). Graphene-Based Supercapacitor with an Ultrahigh Energy Density. Nano Letters 10(12): 4863–4868.

Ma, G. F. (2014). High performance solid-state supercapacitor with PVA-KOH-K-3 Fe(CN)(6) gel polymer as electrolyte and separator. Journal of Power Sources 256: 281–287.

Sadeghzadeh, H. (2009). New Reversible Crystal-toCrystal Conversion of a Mixed-Ligand Lead(II) Coordination Polymer by De- and Rehydration. Inorganic Chemistry 48(23): 10871–10873.

Shi, L. (2008). Controlled growth of lead oxide nanosheets, scrolled nanotubes, and nanorods. Crystal Growth & Design 8(10): 3521–3525.

Tuncheva, V. & Baleva, M. (1995). The application of the pulsed laser deposition for producing of PbO coatings. Elevated Temperature Coatings: Science and Technology I: 145–153.

Wang, J. (2001). Electrochemical performance of nanocrystalline lead oxide in VRLA batteries. Journal of Alloys and Compounds 327(1-2): 141-145.

Wang Y. G. (2013). Selected-control hydrothermal growths of alpha- and beta-PbO crystals and orientated pressure-induced phase transition. Crystengcomm 15(18): 3513-3516.

A large-scale SERS substrate fabricated by using femtosecond laser with superhydrophobicity

And, B.Q. & Shen, Z. 2005. Fabrication of Superhydrophobic Surfaces by Dislocation-Selective Chemical Etching on Aluminum, Copper, and Zinc Substrates. Langmuir the Acs Journal of Surfaces & Colloids: 21(20):9007–9.

Baldacchini, T., Carey, J.E., Zhou, M., et al. 2006. Superhydrophobic surfaces prepared by microstructuring of silicon using a femtosecond laser. Langmuir the Acs Journal of Surfaces & Colloids: 22(11):4917–9.

Ding, X., Zhou, S., Gu, G., et al. 2011. A facile and large-area fabrication method of superhydrophobic self-cleaning fluorinated polysiloxane/TiO 2 nanocomposite coatings with long-term durability. Journal of Materials Chemistry: 21(17):6161–6164. Guo, Z., Jian, F., Wang, L., et al. 2007. Fabrication of superhydrophobic copper by wet chemical reaction. Thin Solid Films: 515(18):7190–7194. Hamad, S., Podagatlapalli, G.K., Mohiddon, M.A. et al. 2014. Cost effective nanostructured copper substrates prepared with ultrafast laser pulses for explosives detection using surface enhanced Raman scattering. Applied Physics Letters: 104, 263104–263105. Haynes, C.L., McFarland, A.D. & Duyne, R.P.V. 2005. Surface-Enhanced Raman Spectroscopy: Analytical Chemistry: 77, 338 A-346 A. Kneipp, K., Kneipp, H. & Kneipp, J. 2006. Surfaceenhanced Raman scattering in local optical fields of silver and gold nanoaggregates-from single-molecule Raman spectroscopy to ultrasensitive probing in live cells. Accounts of Chemical Research: 39, 443–450. Leon, A.C.C.D., Pernites, R.B. & Advincula, R.C. 2012. Superhydrophobic Colloidally Textured Polythiophene Film as Superior Anticorrosion Coating. Acs Applied Materials & Interfaces: 4(6):3169–3176. Lim, D.K., Jeon, K.S., Hwang, J.H., et al. 2011. Highly uniform and reproducible surface-enhanced Raman scattering from DNA-tailorable nanoparticles with 1-nm interior gap: Nature Nanotechnology: 6, 452–460. Luo, Y.F., Lang, H.Y., Liang, J., et al. 2011. Fabrication of Superhydrophobic Surfaces on Aluminum Alloy by Simple Chemical Etching Method. Advanced Materials Research: 239–242:2270–2273. Sas, I., Gorga, R.E., Joines, J.A., et al. 2012. Literature review on superhydrophobic self-cleaning surfaces produced by electrospinning. Journal of Polymer Science Part B Polymer Physics: 50(12):824–845. Shenton, C. 2009. Fabrication and anti-corrosion property of superhydrophobic hybrid film on copper surface and its formation mechanism. Surface and

Interface Analysis: 41(11):872–877. Singh, A.K. & Singh, J.K. 2016. Fabrication of zirconia based durable superhydrophobic–superoleophilic fabrics using nonfluorinated materials for oil-water separation and water purification. Rsc Advances: 6, 103632–103640. Tai, M.H., Gao, P., Tan, B.Y., et al. 2014. Highly efficient and flexible electrospun carbon-silica nanofibrous membrane for ultrafast gravity-driven oil-water separation. Acs Applied Materials & Interfaces: 6(12):9393–9401. Tong, L. & Käll, H.X.M. 2014. Nanogaps for SERS applications. Mrs Bulletin: 39(2):163–168. Xu, L., Karunakaran, R.G., Guo, J., et al. 2012. Transparent, superhydrophobic surfaces from one-step spin coating of hydrophobic nanoparticles. Acs Applied Materials & Interfaces: 4(2):1118–1125. Zheng, Y., Soeriyadi, A.H., Rosa, L., et al. 2015. Reversible gating of smart plasmonic molecular traps using thermoresponsive polymers for single-molecule detection: Nature Communication: 6 (2015).

A study on the ship model resistance test and numerical simulation

Deng, R. & Huang, D.B. & Zhou, G.L. 2013. Investigation on some factors effecting ship resistance calculation with CFD code FLUENT. Journal of Ship Mechanics 17(6): 616–624.

Gao, Z.L. & Pang, Q.X. & Zhang, R.B. 2014. Calculation of ship resistance in muddy navigation area based on CFD method. SHIPBUILDING OF CHINA 35(4): 104–111.

Liu, Y.Z. & Zhang, H.X. & Li, Y.L. 2001. Calculations of the ship performances and solving of RANS equations in the 21st century. Journal of Ship Mechanics 5(5): 66–84.

Marzio Piller. & Enrieo Nobile. & J. Thomas. 2002. DNS study of turbulent transport at low Prandtl Numbers in a channel flow. Journal of Fluid Meehanies (458): 419–441.

Michelassi, V. & J.G. Wissink. & W. Rodi. 2003. Direct numerical simulation, large eddy simulation and Unsteady Reynolds-averaged Navier-Stokes simulations of Periodic unsteady flow in a low-Pressure turbine cascade: A comparison. Journal of Power and Energy 217(4): 403–412.

Sheng, Z.B. & Liu, Y.Z. 2014. Principle of ship. Shanghai: Shanghai Jiao Tong University Press.

Stephane, V. 2003. Local mesh refinement and penalty methods dedicated to the Direct Numerical Simulation of incompressible multiphase flows. Proceedings of the ASME/JSME Joint Fluids Engineering Conference: 1299–1305.

Sun, X.J. & He, Y.P. & Tan, J.H. 2003. Study of 2500 units PCTC resistance performance with experiment and CFD calculation method. Journal of East China Shipbuilding Institute (Natural Science Edition) 17(6): 1–5.

Versteeg, H.K. & W. Malalasekera. 1995. The Finite Volume Method. New York.

Wissink, J.G. 2003. DNS of separating low Reynolds number flow in a turbine cascade with incoming wakes. International Journal of Heat and Fluid Flow 24(4): 626–635.

Xu, L. 2012. Optimization of ship hull resistance based on CFD method. Shanghai Jiao Tong University: 101.

Yu, W.J. 2009. Research on calculation and prediction for ship resistance based on CFD theory. Shanghai Jiao Tong University: 98.

Magnetic memory testing signal analysis of Q345 steel welding parts under the static tension condition

Dubov A A. Diagnostics of metal items and equipment by means of metal magnetic memory[C]. Proceedings of CHSNDT 7th Conference on NDT and International Research Symposium. Shantou, China: Non-Destructive Testing Institution, CMES, 1999: 181-187.

Leng Jiancheng, Xu Minqiang, Xing Haiyan. The Research Progress of Ferromagnetic Component Magnetic Memory Testing Technology [J]. Journal of Materials Engineering, 2010, 11: 88-92.

Long Feifei, Gao Guozhu, Zhang Xiaoyong, etc. Fracture Magnetic Memory Testing Technology Research in the Plates and Weld Joints [J]. Chinese Journal of Safety Science. 2012, 22 (7): 102-107.

Ren Jilin, Lin Junming. Metal Magnetic Memory Testing Technology [M]. Beijing: China power press, 2000: 44-69.

Roskosz M. Metal magnetic memory testing of welded joints of ferritic and austenitic steels[J]. 2011, 44: 305-310.

Research on reliability assessment of success or failure product based on small sample

Figure 2. The value of R_L with $p = 0.95$, $p_0 = 0.95$.

Numerical simulation of hydroforming of a stainless steel sink

Figure 9. FLD of ordinary deep drawing.

Figure 10. FLD of hydroforming.

The fabrication and measurement of a bi-axial thermal convection acceleration sensor

Figure 7. The TCR value of P-type silicon.

Innovative green design of the frog ramming machine based on TRIZ/FRT

Figure 4. Down view of scheme 2.

Figure 5. Static state view of pulley 3.

Figure 6. Performance view of pulley 3.

Rotor fault diagnosis based on SVM and improved D-S theory

Table 6. Comparison of convergence.

	$m(A_1)$	$m(A_2)$	$m(A_3)$	$m(A_4)$	$m(A_5)$	θ
SVM1	0.025	0.799	0.025	0.026	0.125	0
SVM2	0.025	0.717	0.025	0.025	0.208	0
SVM3	0.024	0.553	0.024	0.024	0.375	0
D-S	0	0.970	0	0	0.030	0
Liu	0.016	0.791	0.016	0.016	0.161	0
Yager	0	0.317	0	0	0.010	0.673
Improved method	0	0.965	0	0	0.035	0

Table 7. Accuracy of different algorithms.

Methods	Number of correct predictions	Number of test samples	Accuracy
D-S	140	175	80.0%
Liu	146	175	83.4%
Yager	27	175	15.4%
Improved method	162	175	92.3%

Housari BA, Nassar SA, (2007) “Effect of thread and bearing friction coefficients on the vibration-induced loosening of threaded fasteners”, Journal of vibration and acoustics, Vol. 129, No. 4, pp484–94. Nassar SA, Barber G, Zuo D, (2005) “Bearing friction torque in bolted joints”, Tribology Transactions, Vol. 48, No. 1, pp69–75. Nassar SA, Ganeshmurthy S, Ranganathan RM, Barber GC, (2007) “Effect of tightening speed on the torquetension and wear pattern in bolted connections”, Journal of pressure vessel technology, Vol. 129, No. 3, pp426–40. Nassar SA, Housari BA, (2006) “Effect of thread pitch and initial tension on the self-loosening of threaded fasteners”, Journal of pressure vessel technology, Vol. 128, No. 4, pp590–8. Nassar SA, Housari BA, (2007) “Study of the effect of hole clearance and thread fit on the self-loosening of threaded fasteners”, Journal of mechanical design, Vol. 129, No. 6, pp586–94. Nassar SA, Matin PH, (2006) “Clamp load loss due to fastener elongation beyond its elastic limit”, Journal of pressure vessel technology, Vol. 128, No. 3, pp379–87. Nassar SA, Veeram AB, (2006) “Ultrasonic control of fastener tightening using varying wave speed”, Journal of pressure vessel technology, Vol. 128, No. 3, pp427–32. Nassar SA, Yang X, (2007) “Novel formulation of the tightening and breakaway torque components in threaded fasteners”, Journal of Pressure Vessel Technology, Vol. 129, No. 4, pp653–63. Yang X, Nassar SA, Wu Z, (2011) “Criterion for preventing self-loosening of preloaded cap screws under transverse cyclic excitation”, Journal of vibration and acoustics, Vol. 133, No. 4, pp041013. Zaki AM, Nassar SA, (2008) “Effect of Coating Thickness on the Friction Coefficients and Torque-Tension Relationship in Threaded Fasteners”, ASME 2008 Pressure Vessels and Piping Conference, Vol. No. pp253–61. Zaki AM, Nassar SA, Yang X, (2012) “Effect of conical angle and thread pitch on the self-loosening performance of preloaded countersunk-head bolts”, Journal of Pressure Vessel Technology, Vol. 134, No. 2, pp021210. Zou Q, Sun T, Nassar S, Barber G, Gumul A, (2007) “Effect of lubrication on friction and torque-tension relationship in threaded fasteners”, Tribology Transactions, Vol. 50, No. 1, pp127–36.

Thermal characteristic analysis of a hollow screw based on the fluid structure thermal coupling

Figure 4. Coolant inlet temperature with its exit tem

perature, screw temperature curves.

Figure 5. Deformation of screw in all directions under

different cooling fluid flow.

Figure 6. Highest temperature of screw and the tem

perature difference between inward and outward.

Figure 7. Relation curves of deformation and coolant

flow.

Research on intelligent exhaust device design of the breaker in the substation

Figure 7. Intelligent exhaust device working flow

chart.

Figure 8. Exhaust breaker intelligent detection device.

An improved calibration method for a nondestructive testing system based on infrared thermopile sensors

Blanco M, Cueva-Mestanza R, Peguero A. NIR analysis of pharmaceutical samples without reference data: improving the calibration [J]. Talanta, 2011, 85(4).

Chen Xiangbo. Research on Infrared sensors' temperature drift and nonlinear compensation technology [J]. Journal of Beijing industrial vocational and technical college, 2007, 6(1):1-8.

Ferraro Simona, Marano Giuseppe, Ciardi Laura et al. Impact of calibration fitting models on the clinical value of chromogranin A [J]. Clinical Chemistry and Laboratory Medicine, 2009, 47(10).

Li Xiangdi, Huang Ying, et al. Infrared imaging system and its application [J]. Laser and Infrared, 2014, 44(3):229-234.

Nie Yanwei. The development and research of infrared array thermopile platform [D]. Taiyuan: North University of China. Scriloner D A, et al. Physical limitations to nonuniformity correction in IR focal plane arrays[C]// Technology and Applications, SPIE, 1987, 865: 185-202. Torres, S N, J E Pezoa, M M Hayat. Scene-based nonuniformity correction for focal plane arrays by the method of the inverse covariance form [J]. Applied Optics, 2003, 42(29):5872-5881. Zhang Jun, Qian Weixian, Liu Zewei. Analysis and correction to four quadrant detector's output heterogeneity [J]. Infrared technology, 2016, (7):565-570. Zhao Min, Chen Xiaoping, et al. Implementation of sensor's real-time self-calibration/self-compensation [J]. Chinese Journal of Scientific Instrument, 1999, 20(4):432-434. Zhou T, Dong T, Su Y, et al. High-precision and low-cost wireless 16-channel measurement system for multilayer thin film characterization [J]. Measurement, 2013, 46(9):360-361.

Evaluation of wind turbine power generation performance based on a multiple distribution model

Blanco M.I. 2009. The economics of wind energy. Renewable and Sustainable Energy Reviews, 2009(13):1372–1382. Chu Zheng & Li Nan. 2014. Air density self-adapting wind turbine optimal torque control. Journal of Shanghai Electric Technology, 2014(2):41–44. Guo S.Q. 2016. Method study on health performance evaluation of wind turbine based on gray correlation. Magazine on Equipment Machinery:7–11. Lapira E, Brisset D, Davari H, Siegel D. & Lee J, Wind turbine performance assessment using multi-regime modeling approach. International Journal of Renewable Energy, vol. 45, pp. 86–95, 2012. Liao L. An adaptive modeling for robust prognostics on a reconfigurable platform. Department of Mechanical Engineering. Cincinnati: University of Cincinnati; 2010. Xiao Q. 2014. The early sight of the wind power development framework in “13th Five-Year”. Energy Research & Utilization, 2014(6):4–5.

Research on the acoustic emission testing of the tank truck and on the defect acoustic emission source location method

Wang, H. L., M. C. Ge. (2008), Acoustic emission/ microseismic source location analysis for a limestone mine exhibiting high horizontal stresses. International Journal of Rock Mechanics and Mining Sciences, 45(5), 720-728.

Wang, Q., G. X. Zhang, Z. K. Zhou, et al. (2005), Research on acoustic emission location method for oil pipeline breakage. Journal of Zhejiang University: Engineering Science, 39(3), 322-329. Wang, Y. D., Y. T. Xu, et al. (2009), Application of Acoustic Emission Technology onto Container Tank Testing. NONDESTRUCTIVE TESTING, 3(6), 499-500, 508. Zhang, W. G., Y. F. Huang, R. Y. YE, et al. (2012), Background noise on accuracy of line localization for acoustic emission detection. Journal of China University of Metrology, 23(4), 326-331.

Nonlinear dynamic analysis of a cantilever plate for generating electricity based on electromagnetic induction

Beeby, S.P., R.N. Torah, M.J. & P. Tudor. (2007). A Micro Electromagnetic Generator for Vibration Energy Harvesting. Journal of Micromechanics and Microengineering 17(7), 1257-1265.

Culler, D., D. Estrin, & M. Srivastava. (2004). Guest Editors' Introduction: Overview of Sensor Networks. Computer, 41-49.

Li, J.Z. & Gao, H. (2008). The research progress of wireless sensor network. Research and development of the computer (01), 1-15.

Lim, C.W., K.M. Liew, & S. Kitipornchai. (1998). Vibration of cantilevered laminated composite shallow conical shells. Int J Solids Struct (35), 1695-1707. Narita Y. (1985). The effect of point constraints on transverse vibration of cantilever plates. J Sound Vib (102), 5-13. Nayfeh, A.H. & D.T. Mook (1979). Nonlinear oscillations. New York: Wiley. Oh, K. & A.H. Nayfeh (1996). Nonlinear combination resonances in cantilever composite plates. Nonlinear Dynamics (11), 143-169. Vinod, R., M.G. Challa, & T. Prasad. (2009). A Coupled Piezoelectric-Electromagnetic Energy Harvesting Technique for Achieving Increased Power Output through Damping Matching. Smart Materials and Structures 18(9), 095029. Yu S.D. (2009). Free and forced flexural vibration analysis of cantilever plates with attached point mass. J Sound Vib (321), 27-85.

Influence of inductance on an interleaved parallel boost PFC circuit

Chan C.H. and M.H. Pong, Input Current Analysis of Interleaved Boost Converters Operating in Discontinuous-Inductor-Current Mode[C]. in Proc. IEEE PESC 1997, pp. 392-398.

Choudhury and J.P. Noon. A DSP Based Digitally Controlled Interleaved PFC Converter, in Proc[C]. IEEE APEC 2005, pp. 648-654.

Grote, T., H. Figge, N. Frohleke, W. Beulen, F. Schafmeister, P. Ide and J. Bocker. Semi-Digital Interleaved PFC Control with Optimized Light Load Efficiency[C]. in Proc. IEEE APEC 2009, pp. 1722-1727.

Huber, L., B.T. Irving, and M.M. Jovanovic. ClosedLoop Control Methods for Interleaved DCM/CCM Boundary Boost PFC Converters[C]. in Proc. IEEE APEC 2009, pp. 991-997

Miwa, B.A., D.M. Otten and M.E. Schlecht. High Efficiency Power Factor Correction Using Interleaving Techniques[C]. in Proc. IEEE APEC 1992, pp. 557-668.

Wang, C., M. Xu, F.C. Lee and Z. Luo. Light Load Efficiency Improvement for Multi-Channel PFC[C]. in Proc. IEEE PESC 2008, pp. 4080-4085.

Research on carbon option pricing based on the real option theory

Black F, Scholes M. 1973. The Pricing of Options and Corporate Liabilities. Journal of Political Economy 81(3):637-654.

Daskalakis G, Psychoyios D, Markellos R N. 2009. Modeling CO2, emission allowance prices and derivatives: Evidence from the European trading scheme. Journal of Banking & Finance 33(7):1230-1241. Jensen J, Rasmussen T N. 2000. Allocation of CO2, Emissions Permits: A General Equilibrium Analysis of Policy Instruments. Journal of Environmental Economics & Management 40(2):111-136. Kulatilaka N, Marcus A J. 1992. Project valuation under uncertainty: when does DCF fail? Journal of Applied Corporate Finance 5(3):92-100. Mansanet-Bataller M, Valor E. 2007. CO2 Prices, Energy and Weather. Energy Journal 28(3):73-92. Myers S C. 1977. Determinants of corporate borrowing. Journal of Financial Economics 5(2):147-175.

Sustainable development capacity of resource-based cities in the Beijing–Tianjin–Hebei region of China: A comparative study

Hwang, C. L. & K. Yoon (1981). Multiple Attribute Decision Making Methods and Applications, Springer, Berlin Heidelberg.

Kinnear, S. & I. Ogden (2014). Planning the innovation agenda for sustainable development in resource regions: A central Queensland case study. Resources Policy, 39: 42–53. Long, R. Y., H. Chen, H. J. Li, & et al. (2013). Selecting alternative industries for Chinese resource cities based on intra- and inter-regional comparative advantages. Energy Policy, 57: 82–88. State Council of the People’s Republic of China (2013). National planning on sustainable development of resource-based cities (2013–2020). Su, S., J. Yu & J. Zhang (2010). Measurements study on sustainability of China’s mining cities. Expert systems with applications, 37, 6028–6035. Yu, J., S. Z. Yao, R. Q. Chen & et al. (2005). A quantitative integrated evaluation of sustainable development of mineral resources of a mining city: a case study of Huangshi, Eastern China. Resources Policy, 30, 7–19. Yu, J., Z. J. Zhang & Y. F. Zhou (2008). The sustainability of China’s major mining cities. Resources Policy, 33, 12–22. Zhang, W. Z., J. H. Yu, D. Wang & L. Chen (2014). Study on sustainable development of resource-based cities in China. Beijing: Science Press.

PM open-source component spectrum analysis in the harbor area

Figure 8. Enrichment factors of heavy metals in re

suspended dust of the Tianjin port area.

Figure 9. Enrichment factors of heavy metals in the soil

dust of Tianjin.

Figure 10. Enrichment factors of heavy metals in the

road dust of Tianjin.

Distribution of oil spill risk on offshore facilities in the Bohai area based on ETA

Table 4. Oil spill probability of eight offshore facilities in the Bohai area.

Position of oil spill	BZ25-1	BZ34-2/4	CFD11	JZ9-3	LD	PL19-3	QHD32-6	YingBei
Rate of oil spill accidents	0.461	0.406	0.296	0.339	0.435	0.496	0.376	0.298

Table 5. Corresponding relations between oil spill risk

level and colors.

Colors	Red	Pink	Blue	Green	White
Oil spill risk level	High	Less high	Medium	Less low	Low

Figure 4. The distribution of oil spill risk grades.

Developing a low-carbon economy and constructing a low-carbon city—a Xuzhou perspective

Hao, J.Y. & S. Jing Zhi (2014). Thinking of Xuzhou's industry transformation under the Low carbon economy background. J. Journal of Xuzhou Institute of Technology (Social Science Edition).5, 49–54.

Li, P. (2011). How far away from the low-carbon city of Xuzhou. J. Commercial Research.5, 210–216.

Li, Y.B. & C. Jiang (2012). A Study on Low-carbon Industrial Space Layout Optimization of Xuzhou Economic and Technological Development Zone. J. Northern Economy and Trade.4, 32–33.

Liu, N.N., S. Yan Dong & J. Xiao Bin (2013). Low carbon economy development promotes industry transformation and upgrading of Xuzhou. J. Territory & Natural Resources Study.1, 7–9.

Qu, J.F., Z. Shao Liang & L. Gang (2010). Strategy of rejuvenating Xuzhou's old industrial base Based on the perspective of low carbon economy. J. HuaiHai Digest.19, 15–18.

Tao, F. & W. Xiu Lin (2011). Low-carbon industrial structure path optimization of the Xuzhou economic and technological development zone based on industrial cluster. J. Science and Technology Management Research.19, 76–79. Xu, D.Q. (2009). The practice and referential experience of developed countries to develop low carbon economy. J. World Economics and Politics.6, 112–116. Xue, W.Z. (2011). The analysis of the relationship between low carbon economy, ecological economy, the circular economy and green economy. J. Significant Attention.2, 50–52. Yang, W.L., N. Fu Tang & Z. Yuan (2010). Developing Low carbon economy to achieve the leap development of Xuzhou. J. Guide of Sci-tech Magazine.29, 28–29. Yang, Y.X. (2011). Discrimination of ecological economy, circular economy, green economy and lowcarbon economy. J. Forward Position.8, 94–97. Zhang, G.X., G. XiuLin & W. Ying Luo (2014). Management Review, The measure, synergy and evolution of energy conservation and emissions reduction policy in China—based on data study of policies in 1978–2013. J. China Population, Resources and Environment.12, 62–73. Zhang, L.N. & W. Xiu Lin (2011). Low carbon industrial structure path selection of Xuzhou economic development zone. J. Science and Management.4, 77–80.

Geophysical and geochemical characteristics and mineralization potential in the Taonatu area, Inner Mongolia

Allegre, C.J. & Lewin, E. 1995. Scaling laws and geochemical distributions. Earth and Planetary Letters. 132:1-13.

Guan, Z.N. Hao, T.Y. & Yao, C.L. 2002. Prospect of Gravity and Magnetic Exploration in the 21st Century. Progress in Geophysics, 17(2):237-244.

Nabighian, M.N. Grauch, V.J.S. Hansen, R.O. et al. 2005. 75th Anniversary-The historical development of the magnetic method in exploration. Geophysics, 70(6):31-61.

Peng, R.M. Zhai, Y.S. Han, X.F. et al. 2007. Mineralization response to the structural evolution in the Langshan orogenic belt, Inner Mongolia. Acta Petrologica Sinica, 23(3):679-688.

Ren, T.X. & Wu, Z.H. 1998. Method and Technique of Abnormality Screening and Verifying in Regional Geochemical Exploration, Beijing: Geological Publishing House.

Ye, T.Z. 2004. Solid mineral prediction and evaluation techniques. Beijing: China Land Publishing House.

Effects of genistein supplementation on exhaustive exercise-induced oxidative damage in mice

Belviranl, M., Gökbel, H., Okudan, N. & Başaralı, K. 2012. Effects of grape seed extract supplementation on exercise-induced oxidative stress in rats. British Journal of Nutrition 108(2): 249–256.

Bürger-Mendonça, M., Bielavsky, M. & Barbosa, F.C. 2008. Liver overload in Brazilian triathletes after halfironman competition is related muscle fatigue. Annals of Hepatology 7(3): 245–248.

Cooper, C.E., Vollaard, N.B., Choueiri, T. & Wilson, M.T. 2002. Exercise, free radicals and oxidative stress. Biochemical Society Transactions 30: 280–285.

Hammouda, O., Chtourou, H., Chaouachi, A., Chahed, H., Ferchichi, S., Kallel, C., Chamari, K. & Souissi, N. 2012. Effect of short-term maximal exercise on biochemical markers of muscle damage, total antioxidant status, and homocysteine levels in football players. Asian Journal of Sports Medicine 3(4): 239–246.

Hamurcu, Z., Saritas, N., Baskol, G. & Akpinar, N. 2010. Effect of wrestling exercise on oxidative DNA damage, nitric oxide level and paraoxonase activity in adolescent boys. Pediatric Exercise Science 22(1): 60–68.

Hu, Q.L. 2016. Anti-fatigue Effects of the Genistein Supplementation in mice subjected to forced swimming test. International Conference on Biomedical and Biological Engineering, Advances in Biological Sciences Research: 137–142.

Huang, C.C., Huang, W.C., Yang, S.C., Chan, C.C. & Lin, W.T. 2013. Ganoderma tsugae hepatoprotection against exhaustive exercise-induced liver injury in rats. Molecules 18(2): 1741–1754.

Huang, C.C., Lin, T.J., Lu, Y.F., Chen, C.C., Huang, C.Y. & Lin, W.T. 2009. Protective effects of L-arginine supplementation against exhaustive exercise-induced oxidative stress in young rat tissues. Chinese Journal of Physiology 52(5): 306–315.

Huang, C.C., Tsai, S.C. & Lin, W.T. 2008. Potential ergogenic effects of L-arginine against oxidative and inflammatory stress induced by acute exercise in aging rats. Experimental Gerontology 43(6): 571–577. Kim, H.T. & Chae, C.H. 2006. Effect of exercise and α-lipoic acid supplementation on oxidative stress in rats. Biology of Sport 23(2): 143–145. Li, M., Luo, L. & Yu, R. 2014. Effect of flavonoids from tartary buckwheat on the exhaustive exercise-induced oxidative stress of mice. Journal of Food, Agriculture & Environment 12(2): 128–131. Lu, H.K., Hsieh, C.C., Hsu, J.J., Yang, Y.K. & Chou, H.N. 2006. Preventive effects of Spirulina platensis on skeletal muscle damage under exercise-induced oxidative stress. European Journal of Applied Physiology 98(2): 220–226. Qi, B., Liu, L., Zhang, H., Zhou, G.X., Wang, S., Duan, X.Z., Bai, X.Y., Wang, S.M. & Zhao, D.Q. 2014. Antifatigue effects of proteins isolated from Panax quinquefolium. Journal of Ethnopharmacology 153(2): 430–434. Salahshoor, T., Farzanegi, P. & Habibian, M. 2014. Synergistic Effects of omega 3 supplementation and exercise on markers of liver (ALP, AST, and ALT) and muscle (LDH and CK) damage in male karate athlete. Journal of Applied Science and Agriculture 9(1): 245–249. Su, P., Zhang, J., Wang, S., Aschner, M., Cao, Z., Zhao, F., Wang, D., Chen, J. & Luo, W. 2016. Genistein alleviates lead-induced neurotoxicity in vitro and in vivo: Involvement of multiple signaling pathways. Neurotoxicology 53: 153–164. Sugino, T., Aoyagi, S., Shirai, T., Kajimoto, Y. & Kajimoto, O. 2007. Effects of citric acid and l-carnitine on physical fatigue. Journal of Clinical Biochemistry and Nutrition 41(3): 224–230. Sureda, A., Ferrer, M.D., Tauler, P., Romaguera, D., Drobnic, F., Pujol, P., Tur, J.A. & Pons, A. 2009. Effects of exercise intensity on lymphocyte H2O2 production and antioxidant defences in soccer players. British Journal of Sports Medicine 43(3): 186–190. Turner, R.T., Iwaniec, U.T., Andrade, J.E., Branscum, A.J., Neese, S.L., Olson, D.A., Wagner, L., Wang, V.C., Schantz, S.L. & Helferich, W.G. 2013. Genistein administered as a once-daily oral supplement had no beneficial effect on the tibia in rat models for postmenopausal bone loss. Menopause 20: 677–686. Wang, R., Tu, J., Zhang, Q., Zhang, X., Zhu, Y., Ma, W., Cheng, C., Brann, D.W. & Yang, F. 2013. Genistein attenuates ischemic oxidative damage and behavioral deficits via eNOS/Nrf2/HO-1 signaling. Hippocampus 23: 634–647. Wei, H. Bowen, R. Cai, Q. Barnes, S. & Wang, Y. 1995. Antioxidant and antipromotional effects of the soybean isoflavone genistein. Proceedings of the Society for Experimental Biology and Medicine 208: 124–130. Wu, C., Chen, R., Wang, X.S., Shen, B., Yue, W. & Wu, Q. 2013. Antioxidant and anti-fatigue activities of phenolic extract from the seed coat of Euryale ferox Salisb. and identification of three phenolic compounds by LCESI-MS/MS. Molecules 18(9): 11003–11021. Xiao, N.N. 2015.

Effects of resveratrol supplementation on oxidative damage and lipid peroxidation induced by strenuous exercise in rats. Biomolecules & Therapeutics 23(4): 374–378. Yu, S.H., Huang, H.Y., Korivi, M., Hsu, M.F., Huang, C.Y., Hou, C.W., Chen, C.Y., Kao, C.L., Lee, R.P., Lee, S.D. & Kuo, C.H. 2012. Oral Rg1 supplementation strengthens antioxidant defense system against exercise-induced oxidative stress in rat skeletal muscles. Journal of the International Society of Sports Nutrition 9(1):23.

Modeling technologies for evaluation system of Jilin Province environmental protection

Junyan Dong, Hong Jin, Jian Kang, Xi Chen. A pilot study of the acoustic environment in residential areas in Harbin, towards the questionnaire design. Journal of Harbin Institute of Technology. 2011, 18(2), pp. 319–322.

Junyan Dong, Hong Jin. The design strategy of green rural housing of Tibetan areas in Yunnan, China. Renewable Energy, Vol. 49, pp. 63–67.

Junyan Dong, Wen Cheng. Based on the Characteristics of Respondents and the Voice of the Urban Neighborhood Public Space Business Facilities Noise Environment Evaluation Research. Journal of Harbin Institute of Technology. 2014, 20(4), pp. 103–109.

Junyan Dong, Wen Cheng. Research on Optimized Construction of Sustainable Human Living Environment in Regions where People of a Certain Ethnic Group Live in Compact Communities in China. World Renewable Energy Congress XIV.2015.6.

Junyan Dong. The Acoustic Environment Research of Construction Exterior Based on the Ecology Idea. Materials Engineering and Environmental Science. 2015.9.

Analysis and evaluation of the influence factors of waste packaging recycling in a circular economy

Li Xia. 2013. The Efficiency of Energy Utilization Evaluation Index System and Applied Research of China. China University of Geosciences, Doctor Dissertation. Wuhan.

Liu Xiao pei. 2008. Analysis on the Affecting Factors of End-of-life Vehicles and Design for System, Chongqing University, Master degree thesis. Chongqing.

Wang Jun jie. 2012. Packaging Waste Recycling Logistics System Research and Application, Shanghai Jiao Tong University, Master degree thesis. Shanghai.

Wang Zeng min. 2002. The application of factor analysis in the comprehensive analysis and evaluation of enterprise economic benefit, Journal of applied statistics and management: 10–13.

Wu Yu ping. 2011. Research on How to Select Packaging Waste Take-back Model Based on ERP, Chongqing University of Technology, Master degree thesis. Chongqing.

Zhou San yuan. 2012. Study on Influence Factors in Waste Appliance Recycling Based on PCA, Logistics Technology: 151–153.

Construction and application of a water recycling system in crab-crayfish polyculture purification

Bostock, J., B. McAndrew, R. Richards, K. Jauncey, T. Telfer, K. Laorenzen, D. Little, L. Ross, N. Handisyde, I. Gatward, & R. Corner (2010). Aquaculture: global status and trends. Philos. T. R Soc. B. 365, 2897–2912.

Boxall, A., L. Fogg, P.A. Blackwell, P. Blackwell, P. Kay, E. Pemberton, & A. Croxford (2004). Veterinary medicines in the environment. Rev. Environ. Contam. T. 180, 1–91.

Cao, L., W. Wang, Y. Yang, C. Yang, Z. Yuan, S. Xiong, & J. Diana (2007). Environmental impact of aquaculture and countermeasures to aquaculture pollution in China. Environ. Sci. Pollut. R. 14, 452–462.

Gan, F., J. Zhou, H. Wang, C. Du, & X. Chen (2009). Removal of phosphate from aqueous solution by thermally treated natural palygorskite. Water Res. 43, 2907–2915.

Li, X., J. Li, Y. Wang, L. Fu, B. Li, & B. Jiao (2011). Aquaculture industry in China: current state, challenges, and outlook. Rev. Fish. Sci. 19, 187–200.

Peter, E. (2015). Aquaculture environment interactions: Past, present and likely future trends. Aquaculture 447: 2–14.

Shi, W., Y. Duan, X. Yi, S. Wang, N. Sun, & C. Ma (2013). Biological removal of nitrogen by a membrane bioreactor-attapulgite clay system in treating polluted water. Desalination 317, 41–47.

Yin, H., M. Han, & W. Tang (2016). Phosphorus sorption and supply from eutrophic lake sediment amended with thermally-treated calcium-rich attapulgite and a safety evaluation. Chem. Eng. J. 285, 671–678.

Sustainable energy industry coupled with social license to operate

Bian, H., I. Inyang, J.L. Daniels, F. Otto, Environmental issues from coal mining and their solutions, Mining Science and Technology, 20 (2) (2010), pp. 215–223. Bice, S., K. Moffat, Social licence to operate and impact assessment, Impact Assess. Proj. Apprais., 32 (2014), pp. 257–262. Boutilier, R.G. Frequently asked questions about the social license to operate, Impact Assess. Proj. Apprais., 32 (4) (2014), pp. 263–272. Chadwick, M.J., N.H. Highton, N. Lindman, Environmental Impacts of Coal Mining and Utilization, Pergamon Books Inc, Elmsford, NY (1996). Franks, D.M., D. Brereton, C.J. Moran, Managing the cumulative impacts of coal mining on regional communities and environments in Australia, Impact Assess. Proj. Apprais., 284 (2010), pp. 299–312. Kraft John, Arthur, Kraft, On the Relationship between Energy and GNP. J, Energy Development, 3 (1980), pp. 401–403. Lee Chien-Chiang, Chang Chun-Ping, Energy Consumption and Economic Growth in Asian Economies, A more Comprehensive Analysis Using Panel Data. J, Resource and Energy Economics, 2008; (30): 50–65. Zhu Shuwen, Ding Yongxia, et al. The Analysis of the Relationship among Energy consumption, Economic Growth and Carbon Emissions,. J, China Soft Science, 5 (2010), pp. 12–19.

Lab-scale treatment of biologically pretreated landfill leachate by the electro-Fenton process in a continuous flow reactor

Antonopoulou, M., et al (2014). A review on advanced oxidation processes for the removal of taste and odor compounds from aqueous media, J. Water Res. 53, 215.

Brillas, E.I., & M.A, Sires (2009). Oturan, ElectroFenton process and related electrochemical technologies based on Fenton's reaction chemistry, J. Chem. Rev. 109, 6570–6631.

Caricasole, P (2010). Chemical characteristics of dissolved organic matter during composting of different organic wastes assessed by 13C CPMAS NMR spectroscopy, Bioresour. Technol. 101, 8232–8236.

Fellman, J.B., et al (2010). Fluorescence spectroscopy opens new windows into dissolved organic matter dynamics in freshwater ecosystems: A review. Limnol. Oceanogr. 55, 2452–2462.

He, X.S., et al (2011). Fluorescence excitation-emission matrix spectroscopy with regional integration analysis for characterizing composition and transformation of dissolved organic matter in landfill leachates, J. Hazard. Mater. 190, 293–299.

Leenheer J.A., et al (2003). Characterization and copper binding of humic and nonhumic organic matter isolated from the South Platte River: evidence for the presence of nitrogenous binding site, J.Environ. Sci. Technol. 37(1), 328–336.

Lin, S.H., & C.C. Chang (2000). Treatment of landfill leachate by combined electro-Fenton oxidation and sequencing batch reactor method, J. Water Res. 34, 4243–4249.

Maqbool Tahir, et al (2016). Characterizing fluorescent dissolved organic matter in a membrane bioreactor via excitation–emission matrix combined with parallel factor analysis, J. Bioresource Technology. 209, 31–39. Orkun, M.O. & A. Kuleyin (2012). Treatment performance evaluation of chemical oxygen demand from landfill leachate by electro-coagulation and electro-Fenton technique, Environ. Prog. Sust. Energy. 31, 59–67. Oturan, M.A. & J.J. Aaron (2014). Advanced oxidation processes in water/wastewater treatment: Principles and applications. A Review, Crit.

Rev. Environ. Sci. Technol. 44, 2577. Rosales, E., et al (2012). Advances in the electro-Fenton process for re-mediation of recalcitrant organic compounds, J. Chem. Eng. Technol. 35, 609. Wang, K., et al (2013). Spectral study of dissolved organic matter in biosolid during the composting process using inorganic bulking agent: UV-vis, GPC, FTIR and EEM, J. Int. Biodeterior. Biodegrad. 85, 617–623. Wang, M.Z., et al (2011). Optimization of Fenton process for decolouration and COD removal in tobacco wastewater and toxicological evaluation of the effluent, J. Water Sci. Technol. 63, 2471–2477. Wang, Y (2013). Three-dimensional homogeneous ferrite-carbon aerogel: One pot fabrication and enhanced electro-Fenton reactivity, ACS Appl. Mater. Inter. 5, 842. Wu, H.Y., et al (2012). Fluorescence-based rapid assessment of the biological stability of landfilled municipal solid waste, J. Bioresour. Technol. 110, 174–183. Wu, P.X., et al (2011). Effect of dissolved organic matter from Guangzhou landfill leachate on sorption of phenanthrene by Montmorillonite, J. Colloid Interface Sci. 361, 618–627. Zhang, H (2007). Treatment of landfill leachate by electro-Fenton process, J. Fresenius Environ. Bull. 16, 1216–1619.

The water and sediment characteristics numerical simulation of dig-in basin in strong tidal estuary

Figure 12. Maximum sediment concentration when

spring tide in harbour.

Figure 13. Characteristic distribution of the back and

back in harbour.

A method for detecting soil conditions of trenchless projects

Bichkar, R.S., Singh, S.K. & Ray, A.K. 1998. Genetic algorithmic approach to the detection of subsurface voids in cross-hole seismic tomography. Pattern recognition letters 19(5): 527–536.

Carpenter, R. 2002. Embattled HDD industry sees change as necessary, ultimately beneficial: industry maturity, poor economy forcing massive market overhaul. Underground Construction 57(6): 30–32.

Gilbert, P. 1972. Iterative methods for the reconstruction of three-dimensional objects from projections. Journal of theoretical biology 36(105): 117–127. Gokhale, S., Hamm, R. & Sterling, R. 1999. A comprehensive survey on the state of horizontal directional drilling in the North America provides an inside look at this increasingly growing industry, Directional Drilling 7: 20–23. Gordon, R. 1974. A tutorial on ART (algebraic reconstruction techniques). Nuclear Science, IEEE Transactions on 21(3): 78–93. Gupta, H.K. & Roy, Sukanta. 2007. Geothermal energy: an alternative resource for the 21st century. Elsevier: Holland. Jackson, P.D., Gunn, D.A. & Flint, R.C., et al. 2001. Cross-hole seismic measurements for detection of disturbed ground beneath existing structures. NDT & E International 34(2): 155–162. Sakai, S. & Takatsuka, T. 1999. Development of a geophysical exploration technique for detecting shallow strata boundaries. Tunnelling and Underground Space Technology 14: 21–29. Struzziery, J.J., Spruch, A.A. & Blondin, C.A. 1998. Trenchless pipe repair for urban renewal project, Journal of New England Water Environment Association 32(2): 118–125. Trivino, L.F. & Mohanty, B. 2015. Assessment of crack initiation and propagation in rock from explosioninduced stress waves and gas expansion by cross-hole seismometry and FEM–DEM method. International Journal of Rock Mechanics and Mining Sciences 77: 287–299. Xia, C., Gao, X.L. & Chen, Y. A survey method for geotechnical engineering. China Patent: 201310305447.

Baroutian, S. Smit, A.M. Gapes, D. (2013). Relative influence of process variables during non-catalytic wet oxidation of municipal sludge. Bioresour. Technol. 148, 605–610.

Bengao, L. You, S. (2014), Mechanism biochemical excess sludge reduction by wet air oxidation", Pet. Process. Petroche.45(9), 85–89.

Debellefontaine, H. Foussard, J.N. (2000). Wet air oxidation for the treatment of industrial wastes. Chemical aspects, reactor design and industrial applications in Europe. Waste Manage. 20, 5–25.

Disposal of sludge from municipal wastewater treatment plant-Quality of sludge used in separate incineration, GB/T 24602-2009, Beijing, China.

Feng, G.H. Tan, W. Zhong, N. Liu, L.Y. (2014), Effects of thermal treatment on physical and expression dewatering characteristics of municipal sludge. Chem. Eng. J. 247, 223–230.

Gan Q. (2000), A case study of microwave processing of metal hydroxide sediment sludge from printed circuit board manufacturing wash water. Waste Manage. 20, 695–701.

Idris, A. Khalid, K. (2004), Drying of si li ca sludge using microwave heating. Appl. Therm. Eng. 24, 905–918.

Jones, D.A. Lelyveld, T.P. (2002), Microwave heating applications in environmental engineering-a review. Resour.Conserv. Recy. 34, 5–90.

Kanhaiya, L., Anurag, G. (2015), Catalytic wet oxidation of phenol under mild operating conditions: development of reaction pathway and sludge characterization, Clean Technologies and Environmental Policy, 17 (1), 199–210.

Lombardi, L. Carnevale, E.A. Corti, A. (2015), Comparison of different biological treatment scenarios for the organic fraction of municipal solid waste, International Journal of Environmental Science and Technology, 12 (1), 1–14.

Nanekar, S. Dhote, M. Kashyap, S. Singh, S.K. Juwarkar, A.A. (2015), Microbe assisted phytoremediation of oil sludge and role of amendments: a mesocosm study, International Journal of Environmental Science and Technology, 12 (1), 193–202.

Neyens, E. Baeyens, J. (2003), A review of thermal sludge pre-treatment processes to improve de-waterability, J. Hazard. Mater. 98, 51–67.

Pérez-Elvira, S.I., Fernández-Polanco, F., FernándezPolanco, e.al, (2008), Hydrothermal multivariable approach: full-scale feasibility study. Electron. J. Biotechnol. 11 (4), 7–8.

Ploos van Amstel, J.J.A. Rietema, K. (1973), Wet-air oxidation of sewage sludge Part II:the oxidation of real sludges.Chem.Ing.Tech. 45, 1205–1211.

Qi, Y. Thapa, K.B. Hoadley, A.F.A. (2011), Application of filtration aids for improving sludge dewatering properties—a review, Chem. Eng. J. 171, 373–384. Qiao, W. Wang, L. Pan, L. Xun, R. (2008), Sewage Sludge Microwave thermal hydrolysis process, Environ. Sci. 29(1), 152–157. Shufan, Y. (2008), Research on the treatment of the sludge from urban sewage disposal plants by CWAO, M.Sc. thesis, Dept Resources. Civil Eng., Univ. Dongbei, Heping district culture road 3, China. Standard of pollution control on the landfill site of municipal solid waste, GB 16889-2008. Standard of pollution control on the landfill site of municipal solid waste, GB 16889-2008, The people's Republic of China Ministry of Environmental protection& General administration of Quantity supervision, inspection and Quarantine, 2008, Beijing, China. Strong, P. Mcdonald, B. Gapes, D. (2011), Combined thermochemical and fermentative destruction of municipal biosolids: a comparison between thermal hydrolysis and wet oxidative pre-treatment. Bioresour. Technol. 102, 5520–5527. The people's Republic of China Ministry of housing and urban-rural development of the people's Republic of China National Development and Reform Commission, Urban sewage treatment plant sludge treatment and pollution control technology policy(Trial). Urban sewage treatment plant sludge treatment and pollution control technology policy (Trial), Ministry of Environmental protection of the people's Republic of China, Ministry of housing and urban-rural development of the people's Republic of China & Ministry of science and technology of the people's Republic of China, 2009, Beijing, China. Vaxelaire, J. Cézac, P. (2004), Moisture distribution in activated sludges: a review, Wat Res., 38, 2215–2230. Wang, G.

(2013). Present status of treatment and disposal techniques of sludge at home and abroad. Environ. Eng.31, 530–533. Wu, J, Jiang, J, Zhou, H.M. Lei, B.I. (2008), current Operation Status of Sludge Anaerobic Digestion System in Municipal Wastewater Treatment Plants in China, China water & Wast water, 24(22), 21–24. Xun, R. Wang, W. (2009), Water distribution and dewatering performance of the hydrothermal conditioned sludge. Environmen. Sci.30(3), 851–856. Yang, Q.W. Gao, D. et al, (2012). Review of odor control technologies and materials for sewage sludge treatment disposal. ChinaWater & Wastewater 28(23), 145–148. Yu, J. Tian, N.N. (2014). Analysis and discussion of sludge disposal and treatment of sewage treatment plants in China, J. Environ.Eng-China.1(1), 82–86. Yu, J. Tian, N.N. (2014). Analysis and discussion of sludge disposal and treatment of sewage treatment plants in China, J. Environ.Eng-China.1(1), 82–86. Zhi-jun Wang, Wei Wang, Fenfang Li, Development and application of thermal hydrolysis of sludge, China water & wastewater, 2003, 19(10):25–27.

Enhancement of aerobic granulation with real domestic wastewater by powdered activated carbon addition

APHA. 1995. Standard Methods for the Examination of Water and Wastewater, 19th ed. American Public Health Association/American Water Works Association/Water Envirionment Federation, Washington, DC, USA.

Arrojo, B., Mosquera-Corral, A., Garrido, J.M., Mendez, R. 2004. Aerobic granulation with industrial wastewater in sequencing batch reactors. Water Res. 38(14-15): 3389-3399. Beun, J.J., van Loosdrecht, M.C.M., Heijnen, J.J. 1999. Aerobic granulation in a sequencing batch reactor. Water Res. 36(3): 2283-2290. de Kreuk, M.K. 2006. Aerobic granular sludge scaling up a new technology. Ph.D. thesis, Delft University of Technology, Delft, The Netherland. Guo, J.H., Yang, Q., Peng, Y.Z. 2007. Biological nitrogen removal with real time control using step feed SBR technology. Enzyme Microb. Technol. 40(6): 1564-1569. Liu, Y., Wang, Z.W., Qin, L., Liu, Y.Q., Tay, J.H. 2005. Selection pressure-driven aerobic granulation in a sequencing batch reactor. Appl. Microbiol. Biotechnol. 67(1): 26-32. Liu, Y.Q, Moy, B.Y.P., Kong, Y.H., Tay, J.H. 2010. Formation, physical characteristics and microbial community structure of aerobic granules in a pilot-scale sequencing batch reactor for real wastewater treatment. Enzyme Microb. Technol. 46(6): 520-525. Liu, Y.Q., Kong, Y.H., Tay, J.H., Zhu, J.R. 2011. Enhancement of start-up of pilot-scale granular SBR fed with real wastewater. Sep. Purif. Technol. 82: 190-196. McSwain, B.S., Irvine, R.L., Wilderer, P.A. 2004. The influence of settling time on the formation of aerobic granules. Water Sci. Technol. 50(10): 195-202. Moy, B.Y.P., Tay, J.H., Toh, S.K., Liu, Y., Tay, S.T.L. 2002. High organic loading influences the physical characteristics of aerobic sludge granules. Lett. Appl. Microbiol. 34(6): 407-412. Ni, B.J., Xie, W.M., Liu, S.G., Yu, H.Q., Wang, Y.Z., Wang, G., Dai, X.L. 2009. Granulation of activated sludge in a pilot-scale sequencing batch reactor for the treatment of low-strength municipal wastewater, Water Res. 43(3): 751-761. Peng, D., Bernet, N., Delgenes, J.P., Moletta, R. 1999. Aerobic granular sludge-a case study. Water Res. 33(3): 890-893. Qin, L., Liu, Y., Tay, J.H. 2004. Effect of settling time on aerobic granulation in sequencing batch reactor. Biochem. Eng. J. 21(1): 47-52. Su, K.Z. & Yu, H.Q. 2005. Formation and characterization of aerobic granules in a sequencing batch reactor treating soybean-processing wastewater. Environ. Sci. Technol. 39(8): 2818-2827. Vázquez-Padín, J.R., Figueroa, M., Campos, J.L., Mosquera-Corral, A., Méndez, A. 2010. Nitrifying granular systems: a suitable technology to obtain stable partial nitrification at room temperature. Sep. Purif. Technol. 74(2): 178-186. Yang, Q., Peng, Y.Z., Liu, X., Zeng, W., Mino, T., Satoh, H. 2007. Nitrogen removal via nitrite from municipal wastewater at low temperatures using real-time control to optimize nitrifying communities. Environ. Sci. Technol. 41(23): 8159-8164.

Optimal water strategy for the United States

Guaimei Cheng. Research of regional water sustainable use based on multi-objective analysis [D]. Yunnan: Kunming University of Science and Technology, 2005.

Hongbo Zhang, Allocation model of Yellow River and method discussions [J]. Yellow River, Vol 28, No 1, Jan 2006.

Lei Li, Game analysis of allocation of water resources [J]. Commercial Research Vol 390, Dec.

Zhengfa Wang, Water resources distribution models on the river [J]. Water Resources and Hydropower Engineering, Vol 31 No 9, Sep 2000.

A test study on the improved filler from blast furnace slag

Chen Xiaobin, Zhang Jiasheng, Feng Zhipeng. Experimental study on rheol logical Engineering properties of coarsely granular red sandstone soil [J]. Chinese Journal of Rock Mechanics and Engineering, 2007, 26(3): 601–607. (in Chinese)

Chen Zhongyi, Zhou Jingxing, Wang Hongjin. Soil Mechanics [M]. Beijing: Tsinghua University Press, 1992. (in Chinese)

Cheng Zhanlin, Ding Hongshun, Wu Liangping. Experimental study on mechanical behaviour of granular material [J]. Chinese Journal of Geotechnical Engineering, 2007, 29(8): 1151–1158. (in Chinese)

Ding Zhouxiang, Zhu Hehua, Gong Xiaonan, et al. Large deformation description method for constitutive relation based on compression test [J]. Chinese Journal of Rock Mechanics and Engineering, 2007, 26(7): 1356–1364. (in Chinese)

Gao Zhengguo, Du Yulong, Huang Xiaobo, et al. Reinforcement mechanism and construction technology of broken stone fills by dynamic consolidation, 2013, 32(2): 377–384. (in Chinese)

Guo Qingguo. Coarse grain soil engineering properties and applications [M]. Zhengzhou. The Yellow River water Conservancy Press. (in Chinese) Housing and urban-rural development of the People's Republic of China. GB 50007–2011 Code for design of building foundation [S]. Beijing: China Building Industry Press, 2011. (in Chinese) Huang Dawei, Yang Youhai, Huang Jiqiang, et al. Study on the assessment indexes of compaction quality for railway Subgrade constructed by gobi coarse-grained soil filler [J]. China Railway Science, 2012, 33(2): 21–27. (in Chinese) Huang Dawei, Yang Youhai, Lai Guoquan, et al. Analysis of dynamic deformation modulus for high-speed railway subgrade [J]. Rock and Soil Mechanics, 2012, 33(5): 1402–1408. (in Chinese) Jin Xia, Li Liaosha, Dong Yuanchi. Development and prospect of recycling technology of blast furnace slag at home and abroad [J]. China Resources Comprehensive Utilization, 2005 (9): 4–7. (in Chinese) Ministry of Water Resources of the People's Republic of China. SL 237–1999 Specification of soil test [S]. Beijing, China WaterPower Press, 1999. (in Chinese) Wang Haifeng, Zhang Chunxia, Qi Yuanhong, et al. Present situation and development trend of blast furnace slag treatment [J]. Iron and steer, 42(6): 83-87. (in Chinese) Wang Haifeng, Zhang Chunxia, Qi Yuanhong. Status and development trend of treatment and heat recovery technology for blast furnace slag [J]. China Metallurgy, 2007, 17(6): 53-58. (in Chinese) Yang Youhai, Huang Dawei, Lai Guoquan, et al. Analysis of ground coefficient and modulus of deformation of gobi area filler in high-speed railway subgrade [J]. Rock and Soil Mechanics, 2012, 33(5): 1402-1408. (in Chinese) Yang Youhai, Lai Guoquan. Research on Filling Test of High-speed Railway Subgrade in the Gobi Desert [J]. Journal of the China Railway Society, 2011, 33(3): 77-83. (in Chinese) Zhu Jungao, Wang Yuanlong, Jia Hua, et al. Experimental study on resilience behaviour of coarse grained soils [J]. Chinese Journal of Geotechnical Engineering, 2011, 33(6): 950-954. (in Chinese)

Yang, J.K. Dong, W.G. Du, C. & Ma,C. 2012. The Quantitative assessment of World Expo influencing the Shanghai tourism industry. Mathematics in Practice and Theory 16:13–20.

Zhang, X.B. Xiong, X.B. Dai, H.F. Fan, Z.Q. & Chen, K. 2012. Study on fuzzy AHP comprehensive evaluation of the landscape ecology system in highway. In IEEE(eds), 2012 International Conference on Fuzzy Theory and Its Applications:379–383. New York: IEEE.

Zhou, H. 2016. The theory and methods of engineering project ecological evaluation. Beijing: China Architecture & Building Press. Zhu, Y. Yang, R. Li,D.S. & Liu, Y.S. 2015. Comprehensive assessment of regional environmental impact of Beijing-shanghai high speed railway construction project. Journal of the china railway society 11:117–121. Zolfaghaian, S. Nourbakhsh, M. Irizarry, J. Ressang, A. & Gheisari, M. 2012. Environmental impacts assessment on construction sites. 2012 Construction Research Congress: West Lafayette, 21–23 May 2012. Reston: American Society of Civil Engineers.

Chinese Society for Urban Studies. 2009. China's Lowcarbon Eco-city Development Strategy. Beijing: China City Press.

Hannah, J.W. & Hari M.O. 2016. Regional Energy Governance and U.S. Carbon Emissions. Ecology Law Quarterly 43(1): 22–24.

International Energy Agency. 2010. CO 2 Emissions from Fuel Combustion Highlights. http://www.iea.org/publications/free_all.asp.

International Energy Agency. 2015. World Energy Outlook 2014 Edition. http://www.iea.org/publications/free_all.asp.

IPCC. 1997. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. Paris: IPCC/UNEP/ OECD/IEA. Kadian R., R.P. Dahiya, & H.P. Garg. 2007. Energyrelated emissions and mitigation opportunities from the household sector in Delhi. Energy Policy 35(12): 6195–6211. Moriarty P., & D. Honnery. 2009. What energy levels can the Earth sustain? Energy Policy 37(7): 2469–2474. National Bureau of Statistics of China. 2015. China Statistical Yearbook 2014. Beijing: China Statistics Press. Uwasu M., Y. Jiang, & T. Saijo. 2010. On the Chinese carbon reduction target. Sustainability 2(6): 1553–1557. World Bank. 2014. World Development Report 2015: Development and Climate Change. http://www.worldbank.org/ INFOSHOP1/Resources.pdf.

Richards LA. (1931) Capillary conduction of liquids through porous mediums. Journal of Applied Physics 1: 318–333.

Tan YY, Tang FE, Saptoro A, et al. (2015) Septage Treatment Using Vertical-Flow Engineered Wetland: A Critical Review. Chemical Engineering Transaction 45.

Torrens A, Molle P, Boutin C, et al. (2009) Impact of design and operation variables on the performance of vertical-flow constructed wetlands and intermittent sand filters treating pond effluent. Water Research 43: 1851–1858.

Troesch S, A. Liénard, P. Molle, et al. (2009) Treatment of septage in sludge drying reed beds: a case study on pilot-scale beds. Water Science & Technology 60: 11. Vymazal J. (2007) Removal of nutrients in various types of constructed wetlands. Science of The Total Environment 380: 48–65. Vymazal J. (2010) Constructed Wetlands for Wastewater Treatment: Five Decades of Experience†. Environmental Science & Technology 45: 61–69. Woźniak R, Dittmer U and Welker A. (2007) Interaction of oxygen concentration and retention of pollutants in vertical flow constructed wetlands for CSO treatment. Water Science and Technology 56: 31–38. Xu Q, Cui L, Zhang L, et al. (2013) The Effect of Two Factor Combination of Three Kinds of Loading on the Soil Clogging in Vertical Flow Constructed Wetland. Frontier of Environmental Science 2.

Water use efficiency of the Lancang-Mekong River basin region in “the Belt and Road Initiative”

Allan T. 1999. Productive efficiency and allocative efficiency: why better water management may not solve the problem [J]. Agricultural Water Management, (40): 71–75.

Deason J.P., Schad T.M., Sherk G.W. 2001. Water policy in the United States: a perspective [J]. Water Policy, 3(3): 175–192.

Deng G., Li L. 2016. Song Y. Provincial water use efficiency measurement and factor analysis in China: Based on SBM-DEA model [J]. Ecological Indicators, 69: 12–18. Guo Y.J., Ren N. 2013. Water resources development and environmental protection in lower Mekong basin: policy options and basin governance [J]. World Economics and Politics, (07): 136–154. Hensengerth O. 2009. Transboundary River Cooperation and the Regional Public Good: The Case of the Mekong River [J]. Contemporary Southeast Asia, 31(2): 326–349. Menniken T. 2007. China’s Performance in International Resource Politics: Lesson from the Mekong [J]. Contemporary Southeast Asia, 29(1): 97–120. Piao J.Y., Li Z.F. 2013. Water cooperation governance: new Issues of the regional relationship construction in the Langcang-Mekong river basin [J]. Southeast Asian Studies, (05): 27–35. Zhang N., Kong F., Choi Y., et al. 2014. The effect of size-control policy on unified energy and carbon efficiency for Chinese fossil fuel power plants [J]. Energy Policy, 70: 193–200.

An accessibility study of elevator Braille signage system in Da Nang City, Vietnam

Li, M.Q., C.C. Tang, L., Lin, C.M., & J.X. Wang, (2011). Braille system of research facilities elevator accessibility East Regional Hospital. Architectural Institute of Taiwan—23nd second annual meeting building research results publication to meeting collection (p. 119) Taipei, Taiwan: National Taipei University of technology. Su, M.B. (2010). “Research the public works non-barrier elevator braille system application—take Hong Kong and Taiwan as the example,” Feng-Chia University master the paper. Tseng, L. (2015). An Accessibility Study of Elevator Braille System in Chiang Mai Province, Thailand, Architectural Science, 11, 29–43. Tseng, L., C.C. Tang, & C.J. Sun, (2013). A Study on the Braille Elevator Signage System in Public Buildings: The QFD Perspective., Original Research Article Science Direct (Procedia-Social and Behavioral Sciences), 85p152–163.

Investigation and analysis of thermal comfort and IAQ in naturally ventilated primary school classrooms

Figure 9. The difference of evaluation between pupils

and teachers (a) The evaluation of IAQ, (b) The evalua

tion of indoor temperature, (c) The evaluation of relative

humidity. primary school classrooms: creating and validating PMV-based comfort charts. Building and Environment. 46, 2454–2461. Silay, E. 2016. The Evaluation of Thermal Comfort on Primary Schools in Hot-Humid Climates: A Case Study for Antalya. European Journal of Sustainable Development. 5(1), 53–62. Teli, D., Jentsch, M. F. & James, P. A. B. 2012. Naturally ventilated classrooms: An assessment of existing comfort models for predicting the thermal sensation and preference of primary school children. Energy and Buildings. 53, 166–182. Valeria, D. G., Osvaldo, D. P. & Michele, D. C. 2012. In door environmental quality and pupil perception in Italian primary schools. Building and Environment. 56, 335–345. Xu, H. & Ou, D. Y. 2016. Investigation and evaluation of classroom acoustical environment in primary and secondary schools in Fuqing city. Building Science. 32(4), 77–86. Xu, J., Liu, J. P. & Liu, D. L. 2014. Testing and evaluation of indoor thermal environment of classrooms in rural primary schools in Guanzhong area in winter. Building Science. 30(2), 47–50. Zahra, S. Z., Mohammad, T. & Mohammadreza, H. 2016. Thermal comfort in educational buildings: A review article. Renewable and Sustainable Energy Reviews. 59, 895–906.

Improvement of the ensemble forecast of typhoon track in the Northwestern Pacific

Figure 5. Fitow’s average track forecast errors.

Bevir, Mark & David O'Brien 2001. "New Labour and the Public Sector in Britain," Public Administration Review. 61 (5): pp. 535–547.

Chang Chiung-Ling & Chang Li-Ya 2006. "Outsourcing of government processes and its operations—A case study of the Taipei City Government Department of Social Welfare". Hua-gang Journal of Social Sciences: 19, pp. 31–60.

Clarke, John 2000. "Leisure: Managerialism and Public Space," in John Clark, Sharon Gewirtz & Eugene McLaughlin (eds.), New Managerialism New Welfare? London, UK.: SAGE Publications, pp. 186–201.

DeHoog, Ruth Hoogland. 1990. "Competition, Negotiation, or Cooperation: Three Models for Service Contraction, "Administration & Society. 22(3): pp. 317–340.

Falconer, Peter K. & Kathleen McLaughlin. 2000. "Public-Private Partnerships and the 'New Labour' Government in Britain," in Stephen P. Osborne(ed.), Public-Private Partnerships: Theory and Practice in International Perspective. London, UK.: Routledge, pp. 120–133.

Huang Shih-Chieh. 2003. Financial issues would be the key factor in determining the success of BOT projects. Journal of Engineering Biology, 76, Issue 2, pp. 102–106.

Li Tsung-Hsun. 2002. Government outsourcing: theories and practice. BEST-WISE PUBLISHING CO., LTD., p. 26.

Polhill, R.M. 1982. Crotalaria in Africa and Madagascar. Rotterdam: A.A. Balkema., pp. 1–31.

Raffe, Jeffrey A., Debar A. Auger, & Kathryn G. Denhardt 1997. Competition and Privatization Options: Enhancing Efficiency and Effectiveness in State Government. New York, DE: Institute for Public Administration, University of Delaware, p. 56.

Savas, E.S. 2000. Privatization and Public-Private Partnerships. New York: Chatham House. Ibid., pp. 174–210.

Savas, E.S. 2000. "Privatization and Choice in New York

City Social Services," Public Administration Review, 62(1): pp. 82-91.

Woods, Rober. 2000. "Social Housing Managing Multiple Pressures," in John Clarke, Sharon Gewirtz & Eugene McLaughlin(eds.), New Managerialism New Welfare? London, UK.: SAGE Publications, pp. 137-151.

Distribution characteristics of ammonia emission from the livestock farming industry in Hunan Province

Pig 2.25 6.4 5.92 9.2 4.8 4.8 4.8 5.4

Dairy cattle 13.1–55 28 31.0 39.7 17.4 19.4–24.8 40 28.5 29 27 29.4

Beef 18.6 39.7 10.0 9.5–9.9 28 14.3 14 6.8 16.7

Laying hen 0.1 0.1 0.41 0.60 1.24 0.32 0.38 0.45 0.22 0.43

Broiler

chicken 0.1 0.1 0.17 0.24 0.18 0.27 0.28 0.23 0.22 0.20

Goat 1.1–3.0 1.34 1.2 1.2 1.9 1.30

emissions in 2014 is illustrated in Figure 2. It

could be seen that the total annual ammonia

emission fluctuated and showed a downward

trend since 2001. However, there was a sharp maximum in 2009 and the total emission reached 42.4 × 104t·a −1 in the Hunan province. The primary cause was the significantly increased pigbreeding quantity.

Table 2. Ammonia emission in the livestock farming industry/10 4 t·a −1 .

Year	Pig	Dairy cattle	Beef	Laying hen	Broiler chicken	Goat	Total
2004	22.2	5.7	6.2	2.5	4.5	0.8	41.8
2005	23.5	6.0	6.4	0.3	1.3	0.9	38.4
2006	23.9	6.1	6.5	0.3	1.5	0.9	39.3
2007	23.7	6.0	6.4	0.4	2.1	0.9	39.6
2008	20.4	4.2	4.5	1.9	5.6	0.7	37.3
2009	21.1	0.9	10.5	3.0	6.1	0.7	42.4
2010	21.8	2.2	7.8	3.6	5.7	0.7	41.7

2011	21.8	4.4	4.7	3.6	4.7	0.7	39.8
2012	21.1	5.3	5.8	3.0	3.8	0.6	39.6
2013	19.5	5.2	5.7	0.3	1.8	0.5	33.0
2014	19.4	5.3	5.5	0.5	1.1	0.5	32.2

Figure 1. Spatial distribution of ammonia emissions from the livestock farming industry in 2014 in Hunan/10^4 t.

Figure 2. Temporal distribution of ammonia emissions from the livestock farming industry in 2014 in Hunan.

3.4 Distribution of livestock and poultry ammonia emissions in Hunan province

The ammonia emissions of different livestock in 2014 in Hunan are showed in Figure 3. In proportion to 54.82%, the pig-breeding was the largest ammonia emitter. Although its emission factor is not high, nearly 0.22 million slaughters and huge pig-producing quantities led to the strong emissions. Differing from the situation in Pearl River Delta of China and Beijing, the pig-breeding was further manifested as the main ammonia emitter in Hunan province.

4 CONCLUSIONS

Ammonia emissions from livestock and poultry farming in Hunan province ranged from 32.2 to 42.4×10^4 t·a^{-1} when foreign emission factor is applied in the calculation. In 2014, the strongest emitter was Hengyang city, with an emission of 5.50 × 10 4 t·a -1 . In contrast, Zhangjiajie is the

least polluter, with an emission of 0.48 × 10 4 t·a -1 .

Moreover, the total annual emission fluctuated

and showed a downward trend since 2001 due

to the expanded area of banning and retirement.

Furthermore, the average emission intensity in

Hunan province was 1.88 t·km -2 , among which

the biggest emissions was Hengyang, with a

value of 5.50 × 10 4 tons and the lowest emission

was 0.37 tons per square kilometers in western

Hunan. The results also show that pig-breeding

contributed most (54.82%) to ammonia emission.

Asman Willem AH. Ammonia emission in Europe:

Updated Emission and Emission Variations. Bilthoven, the Netherlands: National Institute of Public Health and Environmental Protection, 1992. Barnard W R. Development of a National Emission Inventory to Support Revision of the Particulate National Ambient Air Quality Standard. Toronto, Canada: 1997. Battye William, Aneja Viney P, Roelle Paul A. Evaluation and improvement of ammonia emissions inventories. Atmospheric Environment, 2003, 37(27): 3873–3883. Behera S N, Sharma M. Investigating the potential role of ammonia in ion chemistry of fine particulate matter formation for an urban environment Science of the Total Environment, 2010, 408:3569- 3575. Bouwman A F, Lee D S, Asman WAH, et al. A global high-resolution emission inventory for ammonia. Global Biogeochemical Cycles, 1997, 11(4): 561–587. Bouwman A F, Van Der Hoek K W. Scenarios of animal waste production and fertilizer use and associated ammonia emission for the developing countries. Atmospheric Environment, 1997, 31(24): 4095–4102. Chitjian Mark, Mansell Gerard. An Improved Ammonia Inventory for the WRAP Domain[R]. WRAP missions Forum, 2003. Dong wenxuan, Xing jia, Wang shuxiao. Temporal and Spatial Distribution of Anthropogenic Ammonia China:1994–2006. Environment Science, 2010, 31(7): 1457–1463. Ecetoc J. Ammonia Emissions to Air in Western

Europe. European Centre for Ecotoxicology and Toxicology of Chemicals-ECETOC, 1994. Fu Joshua, Kim Yunhee, Davis Wayne, et al. Quality Improvement for Ammonia Emission Inventory. Washington: United States Environmental Protection Agency, 2005. Kang C M, Lee H S, Kang B W, et al. Chemical characteristics of acidic gas pollutants and PM2.5 species during hazy episodes in Seoul, South Korea, Atmospheric Environment, 2004, 38: 4749–4760. Klimont Zbigniew. Current and Future Emissions of Ammonia in China. Laxenburg, Austria: International Institute for Applied Systems Analysis (IIASA), 2001. Lin Y C, Cheng M T. Evaluation of formation rates of NO 2 to gaseous and particulate nitrate in the urban atmosphere. Atmospheric Environment, 2007, 41:1903–1910. McInnes Gordon. Atmospheric Emission Inventory Guidebook: Volume 1. Copenhagen, Denmark: European Environment Agency, 1996. McNaughton Daniel J, Vet Robert J. Eulerian Model Evaluation Field Study (EMEFS): a summary of surface network measurements and data quality. Atmospheric Environment, 1996, 30(2): 227–238. Misselbrook T H, Van Der Weerden T J, Pain B F, et al. Ammonia emission factors for UK agriculture. Atmospheric Environment, 2000, 34(6):871–880. Van Der Hoek K W. Estimating ammonia emission factors in Europe: summary of the work of the UNECE ammonia expert panel. Atmospheric Environment, 1998, 32(3): 315–316. Pinder Robert W, Strader Ross, Davidson Cliff, et al. Ammonia Emissions from Dairy Farms: Development of a Farm Model and Estimation of Emissions

Figure 3. Ammonia emissions of different livestock in

2014 in Hunan.

from the United States[R]. Washington: United States Environmental Protection Agency, 2003.

Wang wenxing, Lu xiaofeng, Pang yanbo, et al. Geographical distribution of NH 3 Emission Intensi-time

in China. Acta Scientiaecirum Stantiae, 1997, 17(1):

3–8.

Wei Yu-xiang, Yang Wei-fen, Yin Yan, et al. Pollution

Characteristics of Nanjing Water-soluble Ions in Air

Fine Particles under Haze Days. Environmental Sci

ence and Technology, 2009, 32(11): 66–71.

Yang zhipeng. Estimation of Ammonia Emission from

Livestock in china based on Mass-flow Method and

Regional Comparison. Beijing: Beijing University,

2008. Yang F, Tan J, Zhao Q, et al. Characteristics of PM 2.5 speciation in representative megacities and across China. Atmospheric Chemistry and Physics, 2011:5207–5219.
Zhang Q, Jimenez J L, Canagaratna M R, et al. Ubiquity and dominance of oxygenated species in organic aerosols in anthropogenically-influenced Northern Hemisphere midlatitudes. Geophysical Research Letters. VOL.34,L13801,doi:10.1029/2007GL029979, 2007.

Application of aerobic bioremediation to cleanup octachlorinated dibenzofuran polluted soils

Kruse, N.A., J. Bowman, D. Lopez, E. Migliore, & G.P. Jackson. (2014). Characterization and fate of polychlorinated biphenyls, polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans in soils and sediments at the Portsmouth Gaseous Diffusion Plant, Ohio. Chemosphere 114, 93–100.

Kuokka, S., A.L. Rantalainen, M. Romantschuk, & M.M. Häggblom. (2014). Effect of temperature on the reductive dechlorination of 1,2,3,4-tetrachlorodibenzofuran in anaerobic PCDD/F-contaminated sediments. J. Hazard. Mater. 274, 72–78.

Lai, Y.J., & J.G. Becker. (2013). Compounded Effects of Chlorinated Ethene Inhibition on Ecological Interactions and Population Abundance in a Dehalococcoides-Dehalobacter Coculture. Environ. Sci. Technol. 47 (3), 1518–1525.

Liu, H., J.W. Park, & M.M. Häggblom. (2014). Enriching for microbial reductive dechlorination of polychlorinated dibenzo-p-dioxins and dibenzofurans. Environ. Pollut. 184, 222–230.

Megharaj, M., K. Venkateswarlu, & R. Naidu. (2014). Bioremediation A2-Wexler, Philip. In Encyclopedia of Toxicology (Third Edition). Reference Module in Biomedical Sciences 1, 485–489.

NSC. (2012). Development of Treatment Technologies to Remediate Toxic Chemical Contaminated Sites. National Science Council, Taipei, Taiwan Report No. 101-2622-E-006-001-C-C1.

Pongpiachan, S., T. Wiriwutikorn, C. Rungruang, K. Yodden, N. Duangdee, A. Sbrilli, M. Gobbi, & C. Centeno. (2016). Impacts of micro-emulsion system on polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) reduction from industrial boilers. Fuel 172, 58–64.

Shin, E.S., J.C. Kim, S.D. Choi, Y.W. Kang, & Y.S. Chang. (2016). Estimated dietary intake and risk assessment of polychlorinated dibenzo-p-dioxins and dibenzofurans and dioxin-like polychlorinated biphenyls from fish consumption in the Korean general population. Chemosphere 146, 419–425.

Squadrone, S., P. Brizio, R. Nespoli, C. Stella, & M.C. Abete. (2015). Human dietary exposure and levels of polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), Dioxin-Like Polychlorinated Biphenyls (DL-PCBs) and NonDioxin-Like Polychlorinated Biphenyls (NDL-PCBs) in free-range eggs close to a secondary aluminum smelter, Northern Italy. Environ. Pollut. 206, 429–436. Tu, Y.T., J.K. Liu, W.C. Lin, J.L. Lin, & C.M. Kao. (2014). Enhanced anaerobic biodegradation of OCDD-contaminated soils by Pseudomonas mendocina NSYSU: Microcosm, pilot-scale, and gene studies. J. Hazard. Mater. 278, 433–443. Tue, N.M., A.Goto, S. Takahashi, T. Itai, K.A. Asante, T. Kunisue, & S. Tanabe. (2016). Release of chlorinated, brominated and mixed halogenated dioxin-related compounds to soils from open burning of e-waste in Agbogbloshie (Accra, Ghana). J. Hazard. Mater. 302, 151–157. Urban, J.D., D., Wikoff, A.T.G. Bunch, M.A. Harris, & L.C. Haws. (2014). A review of background dioxin concentrations in urban/suburban and rural soils across the United States: Implications for site assessments and the establishment of soil cleanup levels. Sci. Total Environ. 466–467, 586–597. Vallejo, M., M. Fresnedo San Román, I. Ortiz, & A. Irabien. (2015). Overview of the PCDD/Fs degradation potential and formation risk in the application of advanced oxidation processes (AOPs) to wastewater treatment. Chemosphere 118, 44–56. Wittsiepe, J., J.N. Fobil, H. Till, G.D. Burchard, M. Wilhelm, & T. Feldt. (2015). Levels of polychlorinated dibenzo-p-dioxins, dibenzofurans (PCDD/Fs) and biphenyls (PCBs) in blood of informal e-waste recycling workers from Agbogbloshie, Ghana, and controls. Environ. Int. 79, 65–73. Wu, T.W., J.W. Lee, H.Y. Liu, et al. (2014). Accumulation & elimination of polychlorinated dibenzo-p-dioxins and dibenzofurans in mule ducks. Sci. Total Environ. 497–498, 260–266. Yang, C.Y., S. L. Chiou, J.D. Wang, & Y. L. Guo. (2015). Health related quality of life and polychlorinated biphenyls and dibenzofurans exposure: 30 years follow-up of Yucheng cohort. Environ. Res. 137, 59–64. Zhao, L., H. Hou, T. Zhu, F. Li, A. Terada, & M. Hosomi. (2015). Successive self-propagating sintering process using carbonaceous materials: A novel lowcost remediation approach for dioxin-contaminated solids. J. Hazard. Mater. 299, 231–240. Zhen, H., S. Du, L.A. Rodenburg, G. Mainelis, & D.E. F ennell. (2014). Reductive dechlorination of 1,2,3,7,8-pentachlorodibenzo-p-dioxin and Aroclor 1260, 1254 and 1242 by a mixed culture containing Dehalococcoides mccartyi strain 195. Water Res. 52, 51–62.

Experimental study on water-soil interaction influence for environmental change of marine soft soil

Dong, D.X., Li, Y.C., Chen, X.Y., et al. (2014). The influence of large-scale reclamation on the hydrodynamic environment of Qinzhou Bay. Guangxi Sciences, 21(4), 357–364, 369.

Ge, Z.P., Dai, Z.J., Xie, H.L., et al. (2014). The northern Gulf coastline of the temporal and spatial variation characteristics. Shanghai land and resources, 35(2), 49–53.

Hu, C.L. (2009). The Guangxi Beibu Gulf reclamation engineering foundation and construction method. Exploration Engineering, 36(6), 51–54.

Liu, H.M., Wu, H., Zhou, D. (2012). Mechanism analysis and application of dynamic consolidation method in treatment of blown sand foundation. Construction Technology, 41(S1), 58–61.

Liu, H.M., Zhou, D., Yuan, H.B., Wu, H. (2014). Effect of variation of water chemical field in reclamation area on fine structure of fine grained soil. Journal of Civil, Architectrual & Environment Engineering, 36(S1), -4, 8.

Ou, X.D., Pan, X., Yin, X.T., et al. (2015). Guangxi beibu gulf artificial reclaimed soil for land consolidation test research [J]. Rock and Soil Mechanics, 36(1), 28–33.

Sun, Y.G., Gao, J.G., Zhu, X.M. (2012). Qinzhou bonded port of reclamation reclamation project on marine environment. Marine Sciences, 36(12), 84–89.

Wu, H., Liu, H.M., Zhou, D., et al. (2013). The device of soil soaking-load linkage device, Chinese patent, CN103454154A.

Yi, Y.L., Gu, L.Y., Liu, S.Y. (2015). Microstructural and mechanical properties of marine soft clay stabilized by lime-activated ground granulated blastfurnace slag. Applied clay science, 103(1), 71–76.

Energy use and CO emissions in China's pulp and paper industry: Supply chain approach

Laurijssen, J., Marcsidi, M., Westenbroek, A., Worrell E., Faaij, A. 2010. Paper and biomass for energy? The impact of paper recycling on energy and CO 2 emissions. Resources, Conservation and Recycling 54,1208–1218.

Manda, B.M. K., Blok, K., Patel, M. K. 2012. Innovations in papermaking: An LCA of printing and writing paper from conventional and high yield pulp. Science of the Total Environment 439, 307–320.

Munoz, C., Ovalle, C., Zagal, E. 2007. Distribution of soil organic carbon stock in Alfisol profile in Mediterranean Chilean Ecosystems. Journal of Soil Science and Nutrients 7:15–27. Nilsson, L.J., Larson, E.D., Gilbreath, K.R., Gupta, A. 1995. Energy efficiency and the pulp and paper industry. Washington, DC, USA: American Council for an Energy Efficient Economy. Wang, L., Templer, R., Murphy, R. J. 2012. A Life Cycle Assessment (LCA) comparison of three management options for waste papers: bioethanol production, recycling and incineration with energy recovery. Bioresource Technology 120, 89–98.

Research on the limit equilibrium circle theory of entry support

Bai, J.B. & Li, W.F., et al.(2011). Mechanism of floor heave and control technology of entry induced by mining. Journal of Safety Science and Technology, 28(3), 1-5.

Dong, F.T. & Song, H.W., et al. (1994). Entry support theory based on broken rock zone. Journal of China Coal Society, 19(1), 22-32. Gou, P.F. & Hu, Y.G.(2006). Effect of faults on movement of roof rock strata in gateway. Journal of Mining & safety Engineering, 23(3), 285-288. Gou, P.F. & Xin, Y.J, et al.(2013). Stability analysis and mechanism of two side anchorage body in deep mine entry. Journal of Safety Science and Technology, 30 (1), 7-13. Huang, Q.X. & Liu, Y.W.(2014). Ultimate self-stable arch theory in roadway support. Journal of Mining & safety Engineering, 31(3), 355-358. Kang, H.P.(1997). The key circle theory of roadway surround rock. Mechanics and Practice, 19(1): 34-36. Li, S.P. (1986). Concise course of rock mechanics. Xu Zhou: China University of Mining and Technology Press, 139-150. Miao, X.X.(1990). Natural equilibrium arch and stability of surrounding rock of roadway. Journal of Mining & safety Engineering, 7 (2), 55-57. Tan, Y.L. Wang, C.Q. & Gu, S.T.(2003). Anchor reinforcement of entry roof stability potential incentive analysis. Journal of Rock Mechanics and Engineering, 22(1), 2211-2213. Wang, W.G.(1996). Advanced rock mechanics theory. Beijing: Metallurgical Industry Press, 75-82. Xu, J.K. Zhu, Y.F. & Song, D.Z.(2013). Study on the effect of blasting on the stability of entry disturbance based on the theory of shear beam. Journal of Safety Science and Technology, 9(7), 26-31. Yan, H. & Zhang, J.X.(2014). Simulation study on key influencing factors to the roof abscission of the entry with extra-thick coal seam. Journal of Mining & safety Engineering, 31(5), 682-686. Zhao, P.N.(1978). The shape of natural equilibrium arch of the roadway roof by considering the initial horizontal stress. Journal of China University of Mining & Technology, 7(1), 51-58.

Evolution characteristics of rainfall erosivity area based on the frequency analysis method in Zhejiang Province

Fan, S.X., Jiang, D.M., Alamusa, et al. 2003. Studies on throughfall model in forest area. Acta Ecologica Sinica, 23(7):1403-1407.

Guo, T.X., Liu H. 2010. The drawing of Pearson-III frequency curve based on excel. Journal of Water Resources Research, 31(1):39-40. (in Chinese)

Li, R., Guo, Q., Gao H.J., et al. 2011. Analysis of climate change features in Tai'an city from 1951 to 2008. Journal of Shang Dong Agricultural University (Natural Science), 42(1):95-101. (in Chinese)

Liu, B.T., Tao, H.P. & Song, C.F. 2012. Study on annual variation of rainfall erosivity in southwest China using gravity center model. Transactions of the Chinese Society of Agricultural Engineering, 28(21):113-120. (in Chinese)

Mu, X.M., Dai, H.L., Gao, P., et al. 2010. Spatialtemporal characteristics of rainfall erosivity in northern Shanxi region in the Loess Plateau. Journal of Arid Land Resources and Environment, 24(3):37-43. (in Chinese)

Richardson, C.W., Foster, G.R. & Wright D.A. 1983. Estimation of erosion index from daily rainfall amount. Transactions of the ASAE, 26(1):153-156.

Wang, A.J., Li Zhi G. & Liu F. 2013. Spatiotemporal distribution of rainfall erosivity for water erosion district in upper reaches of Yangtze River. Bulletin of Soil and Water Conservation, 33(1):8-11. (in Chinese)

Wang, F., Mu, X.M., Jiao, J.Y., et al. 2007. Impact of human activities on runoff and sediment change of Yan He River based on the periods divided by sediment concentration. Journal of Sediment Research, (4):8-13. (in Chinese)

Wischmeier, W.H. & Smith, D.D. 1978. Predicting rainfall erosion losses: a guide to conservation planning. Agriculture handbook, No. 537 USDA.

Wu, C.G., Lin D.S., Xiao, W.F., et al. 2011. Spatiotemporal distribution characteristics of rainfall erosivity in Three Gorges Reservoir Area. Chinese Journal of Applied Ecology, 22(1):151-158. (in Chinese)

Zhang, W.B. & Fu, J.S. 2003. Rainfall erosivity estimation under different rainfall amount. Resources Science, 25(1):35-41. (in Chinese)

Zhang W.B., Xie, Y. & Liu B.Y. 2002. Rainfall erosivity estimation using daily rainfall amounts, Geographical Research, 22(6):705-711. (in Chinese)

Research on the Norbulingka garden art characteristics under the background of Han-Tibetan cultural blending

Figure 6. At the end of the road before the palace, we can see the other palace and the mountains in the distance.

Figure 5. The garden is divided into different small parts by the plants.

Releasing flux and characteristic of nitrous oxide from wastewater land treatment systems

Al-Omari, A. & Fayyad, M. et al. 2003. Treatment of domestic wastewater by subsurface flow constructed wetlands in Jordan. Desalination 155(1): 27–39.

Arriaga, H., Salcedo, G. & Calsamiglia, S. et al. 2010. Effect of diet manipulation in dairy cow N balance and nitrogen oxides emissions from grasslands in northern Spain. Agriculture, Ecosystems and Environment 135: 132–139.

Capra. & Seicolone et al. 2007. Recycling of poor quality urban wastewater by drip irrigation systems. Journal of Cleaner Production 15: 1529–1534.

Grunfeld, S. & Brix, H. 1999. Methanogenesis and CH 4 emissions: effects of water table, substrate type and presence of Phragmites australis. Aquatic Botany 64(1): 63–75.

Kong, H. N. & Kimochi, Y. 2002. Study of the characteristics of CH 4 and N 2 O emission and methods of controlling their emission in the soil-trench wastewater treatment process. The Science of the Total Environment 290: 59–67.

Lang, M., Li, P. & Zhang, X. et al. 2012. Effects of land use type and incubation temperature on soil nitrogen transformation and greenhouse gas emission. Chinese Journal of Applied Ecology 18(10): 2361–2366.

Liao, Q. & Yan, X. et al. 2010. Models of N 2 O Emission from Agricultural Fields: A Review. Journal of AgroEnvironment Science 29(5): 817–825.

Li, H., Xia, H. & Xiong, Y. et al. 2007. Research progress of factors affecting soil formation and emissions of greenhouse gases. Ecology and Environment 16(6): 1781–1788.

Li, J., Wang, Y. & Wang, L. et al. 2015. Evaluation indices of greenhouse gas mitigation technologies in cropland ecosystem. Chinese Journal of Applied Ecology 26(1): 297–303.

Lim, P. E., Wong, T. F. & Lim, D. V. et al. 2001. Oxygen demand, nitrogen and cop-per removal by free-watersurface and subsurface flow constructed wetlands under tropical conditions. Environment International 26: 425–431.

Lin, K., Feng, J. & Zhu, N. et al. 2008. Discussion on Disadvantages and Solutions in Wastewater Land Treatment Technology. Environmental Science and Management 33(11): 76–82.

Liu, H., Li, X. & Luo, L. et al. 2013. Constructed rapid infiltration wastewater treatment system of GHG emission calculation and comparison. Proceedings of the 2013 annual academic meeting of the Chinese society for environmental sciences 868–873.

Li, Y., Liu, M. & Lu, M. et al. 2010. Phragmites australis effects on N 2 O emission in the Chongming eastern tidal flat. Acta Scientiae Circumstantiae 30(12): 2526–2534. Li, Y., Wang, Y. & Wang, C. et al. 2014. Analysis of N 2 O emissions from the agro-ecosystem in Fujian Province. Chinese Journal of Eco-Agriculture 22(2): 225–233. Qu, S., Gao, B. & Wang, J. et al. 2008. Study on generation mechanism and influencing factors of agricultural soils greenhouse gas. Ecology and Environment 17(6): 2488–2493. Rodriguez-Aragón, L. J. & López-Fidalgo, J. et al. 2005. Optimal designs for the Arrhenius equation. Chemometrics and Intelligent Laboratory Systems 77(1): 131–138. Sun, Z., Liu, J. & Yang, J. et al. 2007. N itrification-denitrification and N 2 O emission of typical Calamagrostis angustifolia wetland soils in Sanjiang Plain. Chinese Journal ofApplied Ecology 18(1): 185–192. Wang, H. 2010. Reducing carbon emissions of Municipal wastewater treatment field. Water & Wastewater Engineering 36(12): 1–4. Wang, H., Jia, X. & Gao, B. et al. 2013. Soil GHG emissions responding to carbon and nitrogen added in different soil types. Acta Pedologiga Sinica 50(6): 1172–1182. Wang, L., Cai, Y. & Xie, H. et al. 2007. Relationships of soil physical and microbial properties with nitrous oxide emission under effects of freezing-thawing cycles. Chinese Journal of Applied Ecology 18(10): 2361–2366. Wolf, I. & Russow, R. 2000. Different pathway of formation of N 2 O, N 2 and NO in black earth soil. Soil Biology and Biochemistry 32(2): 229–239. Wu, J., Zhang, J. & Jia, W. et al. 2009. Nitrous Oxide Fluxes of Constructed Wetlands to Treat Sewage Wastewater. Environmental Science 30(11): 3146–3151. Yang, W., Liu, C. & Wen, H. 2007. Discussion on wastewater land treatment system. Chinese Journal of Soil Science 38(2): 394–398. Zachrit, W. H. & Wayne, F. J. 1993. Performance of an artificial wetlands fiber treating facultative lagoon effluent at Carville, Louisiana. Water Environmental

Research (65): 46. Zheng, J., Pan, G. & Cheng, K. et al. 2014. A discussion on quantification of greenhouse gas emissions from wetlands based on“2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands”. Advances in Earth Science 29(10): 1120–1125. Zheng, J., Zhang, Y. & Chen, L. et al. 2012. Nitrous oxide emissions affected by tillage measures in winter wheat under a rice-wheat rotation system. Acta Ecologica Sinica 32(19): 6138–6146. Zheng, X. H., Liu, C. Y. & Han, S. H. et al. 2008. Description and application of a model for simulating regional nitrogen cycling and calculating nitrogen flux. Advances in Atmospheric Sciences 25(2): 181–201.

A study of development planning for conservation areas in Taiwan

Tung-Ming Lee, Jun Hatano. (1998). The History of Arcade (Din-A-Ka) in Di-Hwa Street, Taipei City. The 2nd International Symposium on Architectural Interchange in Asia. Biol. 147, 195-197.

Tung-Ming Lee, Jun Hatano. (2001). The Design and Formative Background of Town-Houses. Journal of Architecture and Planning (Transactions of AIJ) No. 547, p. 237~p. 242.

Tung-Ming Lee. (2004). Study for Generally Conservation and Sustainable Development of Traditional Town Area in Taiwan. Research Project Report of Architecture and Building Research Institute, Ministry of the Interior, Taiwan, R.O.C.

Tung-Ming Lee. (2005). Study of Spatial and Facade Character of Town-House in Traditional Town Area, Taiwan. Research Project Report of Architecture and Building Research Institute, Ministry of the Interior, Taiwan, R.O.C.

Tung-Ming Lee, Alex Yaning Yen. (2007). A Preliminary Study of Historical Conservation Areas in Taiwan. The 10th Session of the Conference on the Science of Conserving and Reusing Cultural Properties (Ancient Remains, Historic Buildings, Settlements, and Cultural Landscapes).

The study on the control optimization and strategy of indoor visual comfortable environment system

Figure 2. The system structure of indoor visual envi

ronment based on neural network control. *Illuminance

sensor B is used to measure the outdoor illumination,

Illuminance sensor A2 is used to measure the indoor

illumination.

Table 2. Error comparison.

Output	RBF average error	BP average error	RBF error variance	BP error variance
Blinds angle of rotation	0.3428	0.6629	0.7077	40.7511
Light A2	0.0094	0.2029	0.0010	0.0638

Figure 3. The fit of the RBF neural network output

curve. Castilla, M., J. Alvarez & F. Rodrıguez (2014). Comfort Control in Buildings. Springer. Advances Series in Industrial Control. ISBN: 978-1-4471-6346-6. Chen hongbing, Li deying & Shao zongyi (2004). Study on the Effect of Window on Building Energy Consumption. Journal of Beijing Institute of Civil Engineering and Architecture. 20(4):9–12. Chen xueliang & Chen yifei (2010). Research of selfadaptive fuzzy control on sun blind. Colaco S & Kurian (2008). Prospective techniques of effective daylight harvesting in commercial buildings by employing window glazing, dynamic shading devices and dimming control—a literature review. Build Simul 2008;1(4):279–89. Cziker, A., M. Chindris & A. Miron (2007). Implementation of Fuzzy Logic in Daylighting Control. 2007. 195–200. Cziker, A., M. Chindris & A. Miron (2008). Fuzzy controller for a shaded daylighting system. 2008. 203–208. Daum D & Morel N (2010). Identifying important state variables for a blind controller. Build Environ 2010;45(4):887e900. Decker M (2013). Distributed sensing and actuation in building skins. In: Proceedings of energy forum 2013 conference. Bressanone, Italy; December 5–6. E. 12665 (2011). Light and lighting—Basic terms and criteria for specifying lighting requirements. Brussels: European Committee for Standardization. Guillemin A & Molteni S (2002). An energy-efficient controller for shading devices self-adapting to the user wishes. Build Environ 2002;37(11):1091e7. Heschong L. (2002). Daylight and human performance. ASHRAE J 2002;44:65–67. Ippolito, M.G., E. Riva Sanseverino & G. Zizzo (2014). Impact of building automation control systems and technical building management systems on the energy performance class of residential buildings: An Italian case study. Energy and Buildings. 69(0):33–40. Lang caien & Chen yifei (2008). Lighting Fuzzy Controller Based on Visual Comfort Indoors. China Instrumentation. 2008;2:57–59. Lee, E.S., D.L. DiBartolomeo, & S.E. Selkowitz (1998). Thermal and daylighting performance of an automated venetian blind and lighting system in a full-scale private office. Energy and Buildings. 29(1):47–63. Lelieveld C, Voorbij A & Poelman W (2007). Adaptable architecture. Building stock activation. Tokyo: TAIHEI Printing Co; 2007. 245–252. Li huai & Chen yifei (2008). Research on indoor illuminance control system based on fuzzy neural network. Building Electricity. 2008;7(27):27–30. Luigi Martirano, Matteo Manganelli, Luigi Parise & Danilo A. Sbordone (2016). Design of a fuzzy-based control system for energy saving and users comfort. Renewable and Sustainable Energy Reviews 2016;16:268–283. Nielsen, M.V., S. Svendsen, & L.B. Jensen (2011). Quantifying the potential of automated dynamic solar shading in office buildings through integrated simulations of energy and daylight. Solar Energy. 85(5):757–768. Rodrıguez, J.M., M. Castilla, & J.D. Alvarez (2015). A fuzzy controller for visual comfort inside a meetingroom. IEEE. Roetzel A, Tsangrassoulis A & Dietrich U (2010). A review of occupant control on natural ventilation. Renew Sustain Energy Rev 2010;14:1001–1013. http:// dx.doi.org/10.1016/j.rser.2009.11.005. Shen E & Hong T (2009). Simulation-based assessment of the energy savings benefits of integrated control in office buildings. Build Simul e Springer; 2009:239e51. Shen E, Hu J & Patel M (2014). Energy and visual comfort analysis of lighting and daylight control strategies. Build Environ 2014;78:155–170. Silva T, Vicente R & Rodrigues F (2016). Literature review on the use of phase change materials in glazing and shading solutions. Renew Sustain Energy Rev 2016;53:515–535. Tagliabue, L.C., M. Buzzetti, & B. Arosio (2012). Energy Saving Through the Sun: Analysis of Visual Comfort and Energy Consumption in Office Space. Energy Procedia. 30(0):693–703. Thompson R & Yan Ling EN (2014). The next generation of materials and design [Chapter 14]. In: Karana E, Pedgley O, Rognoli V, editors. Materials experience. Boston: Butterworth-Heinemann; 2014. 199–208. Tzempelikos A & Athienitis AK (2007). The impact of shading design and control on building cooling and lighting demand. Sol Energy 2007;81(3):369e82. Urbano R &

Andersen M (2008). A new perspective for searching and selecting light control technologies as a designer. Proceedings of the 25th passive and low energy architecture conference. PLEA2008-25th passive and low energy architecture conference. Dublin, Ireland: October 22–24. Veitch JA & Gifford R (1996). Assessing beliefs about lighting effects on health, performance, mood, and social behavior. Environ Behav 1996;28:446–470. http://dx.doi.org/10.1177/0013916596284002. Yang I & Nam E (2010). Economic analysis of the daylight-linked lighting control system in office buildings. Sol Energy 2010;84(8):1513e25.

Chen, F., and Zhu, D. (2013). Theoretical research on low-carbon city and empirical study of Shanghai. Habitat International, 37: 33–42.

Deakin, M. (2012). Creating Smarter Cities. New York: Taylor & Francis.

Deakin, M. (2013). Smart Cities: Governing, Modelling and Analysing the Transition. New York: Taylor & Francis.

Deakin, M. (2014). From Intelligent to Smart Cities. New York: Taylor & Francis.

Price, L., Zhou, N., Fridley, D., Ohshita, S., Lu, H. Y., Zheng, N. N., and Fino-Chen, C. (2013). Development of a low-carbon indicator system for China. Habitat International, 37: 4–21.

Su, M. R., Chen, B., Xing, T., Chen, C., and Yang, Z. F. (2012). Development of low-carbon city in China: Where will it go? Procedia Environmental Sciences, 13: 1143–1148.

Exploring the lean strategies to obtain the banking loan for energy service companies

Table 3. The values of prominence and relation for 18

factors by Fuzzy Dematel analysis.

Principles	Factors	D	R	D+R	D-R
People (F1)	Situation (A1)	5.53	5.41	10.9	0.12
	Performance (A2)	6.17	5.98	12.2	0.19
	Skills (A3)	5.55	6.09	11.6	-0.50
Purpose (F2)	Funds (B1)	5.14	5.38	10.5	-0.20
	Plans (B2)	5.43	5.75	11.2	-0.30
	Concentrated (B3)	5.06	5.42	10.5	-0.40
Payment (F3)	Attainability (C1)	5.18	5.71	10.9	-0.50
	Quality (C2)	4.71	4.77	9.48	-0.10
	Ratio (C3)	4.97	4.86	9.84	0.11
	Dispute (C4)	4.72	4.24	8.96	0.49
Protection (F4)	Guaranteed (D1)	5.33	5.24	10.6	0.09
	Responsibility (D2)	4.68	4.64	9.32	0.05
	Collaterals (D3)	4.78	4.79	9.57	-0.01
	Security (D4)	4.98	4.67	9.64	0.31
Perspective (F5)	Others (E1)	5.32	5.23	10.5	0.09
	Patents (E2)	5.69	5.59	11.3	0.09
	Integration (E3)	5.64	5.43	11.1	0.22
	Policies (E4)	4.36	4.06	8.42	0.30

Figure 5. Load displacement of mortar wall.

Lin, S. C. (2006). A study on the behavior tendency in room of elderly housing—case studies of three elderly housings in Taipei area–. Chung Yuan Christian University Dissertations.

Li, Q. F. & Tang, X. M. (2008). The research of intergenerational learning in taiwan. Population structure change and family Education. 213–233.

Lo, Y. P. (2015). The research and prospects of luxury residences for the aged. National Tsing Hua University Dissertations.

Masato, S. & Huang, Q. H. (2011). Life Plus. 2.

Scharlach, A. (2012). Creating Aging-Friendly Communities in the United States. Springer Science+Business Media. 35, 25–38. Sanguinetti, A. (2014). Transformational practices in cohousing: Enhancing residents' connection to community and nature. Journal of Environmental Psychology. 40, 86–96. United Nations. (2002). Intergenerational solidarity. Political Declaration and Madrid International Plan of Action on Ageing. 5, 28. Wen, F., Wang, Z. & Qiu, Z. (2015). Analysis of Multi— generationaI Living Mode Under Cohousing in Germany: Case Study on Dortmund City. HUAZHONG ARCHITECTURE. 5, 20–25. Xu, C. D. (2007). The Intergenerational Support, Norms, Ambivalence and Living Arrangement in Later Life of The Mid-Generation. National Taiwan Normal University Dissertations.

A note on the ABAQUS Concrete Damaged Plasticity (CDP) model

Figure 6. Different units using cracking displacement.

The cutting parameter model of energy consumption and its characteristics analysis

Editorial Board of Mechanical Engineering Manual Mechanical engineering handbook. (China Machine Press, Beijing, 1997).

Gutowski T, Branham M, Dahmus JB, Jones AJ, Thiriez A, Sekulic DP. Environmental Science & Technology 43, (2009).

Hu S, Liu F, He Y, Peng B. Journal of Advanced Mechanical Design, Systems, and Manufacturing 4,7 (2010).

Jia S, Tang R, Lv J. Computer Integrated Manufacturing Systems. 19, 5 (2013).

Liu F, Liu S. Journal of Mechanical Engineering 21, (2012).

Liu S, Liu F, Wang Q. Journal of Mechanical Engineering 48, 23 (2012).

Munoz A, Sheng P. Journal of Materials Processing Technology 53, (1995).

Tibetan question parsing integrated with phrase structure and event feature

Table 3. Set up of experimental corpus (sentence). Corpus category

Corpus quantity Training corpus Test corpus

Total 300 70

Table 4. Analysis of Tibetan information extraction

results. Evaluation

Result P R

Phrase syntactic parsing 83.96% 81.47%

Trigger word recognition 93.20% 89.16%

Tibetan question parsing 91.76% 87.28% Agricultural Outlook Conference. Springer Berlin Heidelberg, 2014:307-319. Kaur J. “Effective Question Answering Techniques and their Evaluation Metrics”[J]. International Journal of Computer Applications, 2013, 65(12). Kayes I, Kourtellis N, Quercia D, et al. “The Social World of Content Abusers in Community Question Answering”[C]// Proceedings of the 24th International Conference on World Wide Web. International World Wide Web Conferences Steering Committee, 2015. Liu K, Zhao J, He S, et al. “Question Answering over Knowledge Bases”[J]. Intelligent Systems IEEE, 2015, 30(5):26-35. Liu R, Nyberg E. “A phased ranking model for question answering”[C]// ACM International Conference on Conference on Information & Knowledge Management. 2013:79-88. Ma K, Abraham A, Yang B, et al. “Intelligent Web Data Management of Social Question Answering”[M]// Intelligent Web Data Management: Software Architectures and Emerging Technologies. Springer International Publishing, 2016. Nguyen D Q, Dai Q N, Pham S B. “Ripple Down Rules for Question Answering”[J]. Eprint Arxiv, 2015. Olvera-Lobo M D, Gutiérrez-Artacho J. “Question answering track evaluation in TREC, CLEF and NTCIR”[J]. Advances in Intelligent Systems & Computing, 2015, 353:13-22. Pavlić M, Han Z D, Jakupović A. “Question answering with a conceptual framework for knowledge-based system development “Node of Knowledge””[J]. Expert Systems with Applications, 2015, 42(12):5264-5286. Perera R, Nand P. “Interaction History Based Answer Formulation for Question Answering”[J]. Communications in Computer & Information Science, 2014, 468:128-139. Przybyła P. “Question Analysis for Polish

Question Answering"[C]// Meeting of the Association for Computational Linguistics, Proceedings of the Student Research Workshop. 2013:96-102. Ryu P M, Jang M G, Kim H K. "Open domain question answering using Wikipedia-based knowledge model"[J]. Information Processing & Management, 2014, 50(5):683-692. Ryu P M, Jang M G, Kim H K. "Open domain question answering using Wikipedia-based knowledge model"[J]. Information Processing & Management, 2014, 50(5):683-692. West R, Gabrilovich E, Murphy K, et al. "Knowledge base completion via search-based question answering"[J]. PROFESSION, 2014. Yang B, Manandhar S. "Tag-based expert recommendation in community question answering"[C]// Advances in Social Networks Analysis and Mining (ASONAM), 2014 IEEE/ACM International Conference on. IEEE, 2014:960-963.

Brouthers KD, Brouthers LF, Wilkinson TJ. Strategic alliances: choose your partners. Long Range Planning. Vol. 28, No. 3, p. 28–25. (1995).

Chong Wu, David Barnes. Formulating partner selection criteria for agile supply chains: A Dempster? Shafer belief acceptability optimization approach. International Journal of Production Economics. Vol. 125, No. 2, p. 284–293. (2010).

Constantinos S. Lioukas, Jeffrey J. Reuer, Maurizio Zollo. Effects of Information Technology Capabilities on Strategic Alliances: Implications for the ResourceBased View. Journal of Management Studies. Vol. 53, No. 2, p. 161–183. (2016).

Donald R Lehmann, O' Shaughnessy. Decision criteria used in buying different categories of products. International Journal of Purchasing and Materials Management. Vol. 81, No. 1, p. 9–14. (1982).

Ellram, L. The supplier selection decision in strategic partnerships. Journal of Purchasing Material Management. Vol. 26, No. 4, p. 8–14. (1990).

Heidl, R., K. Steensma and C. Phelps. Divisive faultlines and the unplanned dissolutions of multipartner alliances. Organization Science, Vol. 25, No. 5, p. 1351–1371. (2014). Holjevac, I.A. Business ethics in tourism—as a dimension of TQM. Total Quality Management and Business Excellence. Vol. 19, No. 10, p. 1029–1041. (2008). Jin Wenfeng, Li Naicheng, Xu Zongben. Mathematical Model on Partner Selection Problems in Virtual Enterprise Management. Chinese Journal of Engineering Mathematics. Vol. 25, No. 4, p. 729–734. (2008). Kokangul, A. and Z. Susuz. Integrated analytical hierarch process and mathematical programming to supplier selection problem with quantity discount. Applied Mathematical Modeling. Vol. 33, No. 3, p. 1417–1429. (2009). Lee, A.H.I. A fuzzy supplier selection model with the consideration of benefits, opportunities, costs and risks. Expert Systems with Applications. Vol. 36, No. 2, p. 2879–2893. (2009). Mehralian, G., A. Rajabzadeh Ghatari, H. Morakabzti, and H. Vatanpour. Developing a suitable model for supplier selection based on supply chain risks: an empirical study from Iranian pharmaceutical companies, Iranian Journal of

Pharmaceutical Research. Vol. 11, No. 1, p. 209-219. (2012). Stevan R Holmberg, Jeffrey L Cummings. Building success-ful strategic alliances: strategic process and analytical toolfor selecting partner industries and firms. Long Range Planning. 42(2):164-193. (2009).

A fractal study on the surface topography of shearing marks

Table 2. The value of general dimension energy spec

trum of three kinds of profile curves.

Profile curve	Sample a	Sample b	Sample c
Energy spectrum	13.28774	10.97557	15.35509

Investigation of denoising methods of infrared imagery

Edwin H Land (1997). The Retinex Theory of Color Vision [J]. Scientific American, 237, 108–128.

Rafael C Gonzalez, Richard E Woods (2002). Digital Image Processing [M]. Biejing: Publishing House of Electronics Industry.

Xia Deshen, Fu Desheng (1997). Modern Picture Processing Technology and Application [M]. Nanjing: Southeast University Press.

Xu Jun (2003). Research on the Detection of Small and Dim Targets in Infrared Images [D]. Xi'an: Xidian University.

Xun Ganqing (1998). Infrared Physics and Technology [M]. Xi'an: Xidian University Press.

Zhang Xiufeng, Lou Shuli, Zhang Yanni (2006). Research of Infrared Image Preprocessing in Pattern Recognition [J]. Electro-optic Technology Application, 10, 58–60.

Feature optimization approach to improve performance for big data

Table 1. Machine learning classification model comparison with feature selection.

	kNN	NB	DT	LR	SVM	Adaboost	k-Means
Accuracy	0.9130	0.792	0.9356	0.9574	0.9434	0.9607	0.5104
AUC	0.9342	0.8436	0.9562	0.9698	0.9602	0.9815	0.5218
TPR	0.9429	0.8941	0.9715	0.9783	0.9773	0.9885	0.6510

Influence research on file of software defective testing configuration

Abel Garcia Najera, John A. Bullinaria. An improved multi-objective evolutionary algorithm for the vehicle routing problem with time windows. Computers and Operations Research. 2010 (1):96-105.

Andre B. de Carvalho, Aurora Pozo, Silvia Regina Vergilio. A symbolic fault-prediction model based on multiobjective particle swarm optimization. The Journal of Systems & Software. 2010 (5):167-178. Cataldo, Marcelo, Mockus, Audris, Roberts, Jeffrey A, Herbsleb, James D. Software Dependencies, Work Dependencies, and Their Impact on Failures. IEEE Transactions on Software Engineering. 2009 (6):211-220. Chang Tiantian, Liu Hongwei & Zhou Shuisheng Dept. of Applied Mathematics, Xidian Univ., Xi'an 710071, P.R. China. Large scale classification with local diversity AdaBoost SVM algorithm. Journal of Systems Engineering and Electronics. 2009(06):89-98. Chun Shan, Long Huang, Xiao Lin Zhao. Software Structural Stability Evaluation Method Based on Motifs. Advanced Materials Research. 2014 (989): 330-335. Elaine J. Weyuker, Thomas J. Ostrand, Robert M. Bell. Comparing the effectiveness of several modeling methods for fault prediction. Empirical Software Engineering. 2010 (3):104-112. Joel Lehman, Kenneth O. Stanley. Abandoning Objectives: Evolution Through the Search for Novelty Alone. Evolutionary Computation. 2011 (2):246-257. Marco D'Ambros, Michele Lanza, Romain Robbes. Evaluating defect prediction approaches: a benchmark and an extensive comparison. Empirical Software Engineering. 2012 (4):183-192. Nathalia Cristina Torres Mariani, Rosangela Camara da Costa, Kassio Michell Gomes de Lima,Viviani Nardini,Luís Carlos Cunha Júnior,Gustavo Henrique de Almeida Teixeira. Predicting soluble solid content in intact jaboticaba Myrciaria jaboticaba (Vell.) O. Berg fruit using near-infrared spectroscopy and chemometrics. Food Chemistry. 2014. Nagalakshmi, S., N. Kamaraj. Comparison of computational intelligence algorithms for loadability enhancement of restructured power system with FACTS devices. Swarm and Evolutionary Computation. 2012. Song Qinbao, Jia Zihan, Shi Liu Jin. A General Software Defect-Proneness Prediction Framework. IEEE Transactions on Software Engineering. 2011 (3):105-116.

Http://www.ils.unc.edu/~keyeg/java/porter/index.html. Retrieved:Mar. 8, 2011b.

Jaime Arguello, Fernando Diaz, Jamie Callan. Learning to aggregate vertical results into web search results. Proceedings of the 20th ACM international conference on Information and knowledge management. 2011:153-162.

Joshi, A., R. Motwani. Keyword generation for search engine advertising. Proceedings of Sixth IEEEICDM, 2006:123-129.

Li, L., S. Otsuka, M. Kitsuregawa. Query Recommendation Using Large-Scale Web Access Logs and Web Page Archive, 2008:134-141.

Mostafa, L., M. Farouk, M. Fakhry. An Automated Approach for Webpage Classification. ICCTA09 Proceedings of 19th International conference on computer theory and applications, 2009:89-99. Ravi, S., A. Broder, E. Gabrilovich. Automatic generation of bid phrases for online advertising. In WSDM'10: Proceedings of the 3rd ACM International Conference on Web Search and Data Mining, 2010:341-350. Velasquez, J., S. Ros, H. Yasuda. Identifying keywords to improve a web site text content. 6th International Conference on Information Integration and Webbased Applications & Services, 2004: 39-48. Yuelin Li, Nicholas J. Belkin. An exploration of the relationships between work task and interactive information search behavior. J. Am. Soc. Inf. Sci. 2010 (9):105-126. Zahera, H., G. Hady, W. Abdhed. Query Recommendation for Improving Search Engine Results. Proceedings of the World Congress on Engineering and Computer Science 2010 (WCECS 2010), 2010:243-246.

Research and optimization of the layout of F company truck interior workshop based on GA

Ershi Qi. 2001. Logistics engineering [M]. Beijing: Chinese science and technology publishing house.

Lee. R.C. & J.M. Moore. 1967. CORELAP—Computerized Relationship Layout Planning[J]. Industrial Engineering, 18(3):195-200.

Madhusudanan Pillai V., Irappa Basappa Hunagund. & Krishna K. 2011. Design of robust layout for Dynamic Plant Layout Problems [J]. Computers & Industrial Engineering, 61:813-823. Seomon Takakuwa. & Hiroki Takizawa. 2000. Simulation and Analysis of Non-automated Distribution Warehouse[A]. J.A. Joines. & R.R. Barton. & K. Kang. & P.A. Fishwick ed. Preceeding of the 2000 Winter Simulation[C]. New Jersey: Institute of Electrical and Electronics, 1177-1184. Sunderesh S. & Heragu. 2006. Facilities design[M]. BWS iUniverse.

The study and implementation of VoIP voice terminal system based on android platform

Figure 11. VoIP basic call process. Figure 12. Wireshark capture graph.

Research on a malicious code behavior acquisition method based on the Bochs virtual machine

Chen, P. 2009. Research and implementation of obtaining malicious code behavior. Journal of Computer Application 29: 76-79.

Deng, C, G. 2011. A program understanding approach for stripped binary code. Computer Application. 28(10): 2608-2612.

Li, H. 2011. Technique of detecting malicious executable via behavioral and binary signatures. Application Research of Computers 28(3): 1127-1129.

Li, J, R. 2008. Differential analysis on dynamic binary and its application in malicious code analysis. Application Research of Computers 29(2): 654-660.

Li, Z, L. 2014. Hierarchical analysis method of malicious behavior based on API association. Computer Engineering and Design 35(11): 3730-3735.

Sun, M. 2012. A program understanding approach for stripped binary code. Computer Application. 28(10): 2608-2612.

Yu, Q. 2006. Understanding the source code of Bochs. Nanjing.

Zhao, X, J. 2015. Intrusion Detection Based on Malicious Code Behavior Analysis. Computer Simulation 32(4): 277-280.

Zhu, L, J. 2012. An Identification Method on Unknown malicious Code Based on Dynamic Behaviour. Journal of Shenyang University of Chemical Technology. 26(1): 77-80.

Research on the network security equipment allocation problem based on Monte Carlo tree search and machine learning

Baird, L. (1995). Residual Algorithms: Reinforcement Learning with Function Approximation. Machine Learning Proceedings, 30-37.

Bellemare, M., Veness, J., & Bowling, M. (2013). Bayesian Learning of Recursively Factored Environments. International Conference on Machine Learning (pp.2248-2256).

Le, Q. V., Ngiam, J., Coates, A., Lahiri, A., Prochnow, B., & Ng, A. Y. (2011). On Optimization Methods for Deep Learning. International Conference on Machine Learning, ICML 2011, Bellevue, Washington, USA, June 28 - July (Vol.7, pp.67-105).

Metropolis, N., & Ulam, S. (1949). The Monte Carlo Method. Journal of the American Statistical Association, 44(247), 115-129. Mnih, V., Kavukcuoglu, K., Silver, D., Graves, A., Antonoglou, I., & Wierstra, D., et al. (2013). Playing Atari with Deep Reinforcement Learning. Computer Science. Nair, V., & Hinton, G. E. (2015). Rectified Linear Units Improve Restricted Boltzmann Machines. Proc Icml, 807-814. Silver, D., Huang, A., Maddison, C. J., Guez, A., Sifre, L., & Van, d. D. G., et al. (2016). Mastering the Game of Go with Geep Neural Networks and Tree Search. Nature, 529(7587), 484-489. Tianyilin. (2008). The Research on Building Enterprise Knowledge Management Performance Evaluating Indicator System. Modelling, Simulation and Optimization, International Workshop on (pp.25-29). IEEE.

Robust automatic speech recognition based on neural network in reverberant environments

Kinoshita, K., Delcroix, M., Yoshioka, T., Nakatani, T., Sehr, A., Kellermann, W. & Maas, R. 2013. The reverb challenge: a common evaluation framework for dereverberation and recognition of reverberant speech. In: 2013 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, New Paltz, pp. 1–4.

Kuttruff, H. 2009. Room acoustics. Boca Raton: CRC Press.

Larochelle, H., Bengio, Y., Louradour, J. & Lamblin, P. 2009. Exploring strategies for training deep neural networks. Journal of Machine Learning Research. 10, 1–40.

Lincoln, M., Mccowan, I., Vepa, J. & Maganti, H.K. 2005. The multi-channel wall street journal audio visual corpus (mc-wsj-av): specification and initial experiments. In: 2005 IEEE Workshop on Automatic Speech Recognition and Understanding, San Juan, pp. 357–362.

Liu, Y.L., Zhang, P.Y. & Hain, T. 2014. Using neural network front-ends on far field multiple microphones based speech recognition. In: 2014 IEEE International Conference on Acoustics, Speech and Signal Processing, Brisbane, pp. 5542–5546.

Mccowan, I.A. & Bourlard, H. 2003. Microphone array post-filter based on noise field coherence. IEEE Transactions on Speech and Audio Processing. 11, 709–716.

Naylor, P.A. & Gaubitch, N.D. 2010. Speech dereverberation. Springer Science & Business Media.

Paul, D.B. & Baker, J.M. 1992. The design for the wall street journal-based csr corpus. In: Proceedings of the workshop on Speech and Natural Language, Morristown, pp. 357–362. Robinson, T., Fransen, J., Pye, D., Foote, J. & Renals, S. 1995. Wsjcamo: a british English speech corpus for large vocabulary continuous speech recognition. In: 1995 IEEE International Conference on Acoustics, Speech, and Signal Processing, Detroit, pp. 81–84. Seide, F., Li, G. & Yu, D. 2011. Conversational speech transcription using context-dependent deep neural networks. In: 12th Annual Conference of the International Speech Communication Association, Florence, pp. 437–440. Stolcke, A., Anguera, X., Boakye, K., çetin, Ö., Grézl, F., Janin, A., Mandal, A., Peskin, B., Wooters, C. & Zheng, J. 2005. Further progress in meeting recognition: the ICSI-SRI spring 2005 speech-to-text evaluation system. In: International Workshop on Machine Learning for Multimodal Interaction, Edinburgh, pp. 463–475. Heidelberg: Springer. Tüske, Z., Schlüter, R. & Ney, H. 2013. Deep hierarchical bottleneck MRASTA features for LVCSR. In: 2013 IEEE International Conference on Acoustics, Speech and Signal Processing, Vancouver, pp. 6970–6974. Veselý, K., Karafiát, M. & Grézl, F. 2011. Convolutive bottleneck network features for LVCSR. In: 2011 IEEE Workshop on Automatic Speech Recognition and Understanding, Waikoloa, pp. 42–47. Wang, X.F., Guo, Y.M., Ge, F.P., Wu, C., Fu, Q. & Yan, Y.H. 2015. Speech-picking for speech systems with auditory attention ability. Scientia Sinica Informationis. 45, 1310. Yoshioka, T., Nakatani, T. & Miyoshi, M. 2009. Integrated speech enhancement method using noise suppression and dereverberation. IEEE Transactions on Audio, Speech, and Language Processing. 17, 231–246.

Application of association rule mining in electricity commerce

Figure 4. Strong association rules.

Wu X, Kumar V, Ross Quinlan J, et al. Top 10 Algorithms In Data Mining [J]. Knowledge and Information Systems, 2008, 14(1): 1-37.

Zhang B, Wu Z. Investigating on China's stock market volatility and macroeconomic Indexes [J]. Journal Of WUT (Information & Management Engineering), 2014(6): 843-847.
Zhao Y. R and Data Mining: Examples and Case Studies [M]. 2012.

Research on a non-guided link discovery technology to obtain an early warning of financial risk

Aggarwal C, Yu P: Outlier Detection for High Dimensional Data [A]. ACM SIGM, 2001.

Jiawei Han, Michel Kamber, Jian Pei: Data Mining Concepts and Techniques Third Edition, Machinery Industry Press, 2012.

Liang Xun: Data Mining Algorithms and Application [M], Xiamen University Pressing, 2011.

Liu Fang, Fu Feng: Computer Engineering and Science, 2007, 29 (6): 77–80.

Ramaswamy S, Rastogi R: Efficient Algorithms for Mining Outliers from Large Date set. ACM SIGM, 2003.

Effect of different operating media on the PVT system

Agrawal, S. & Tiwari, G.N. 2013. Overall energy, exergy and carbon credit analysis by different type of hybrid photovoltaic thermal air collectors. Energy conversion and Management 65: 628–636.

Aste, N. del P.C. & Leonforte, F. 2014. Water flat plate PV-Thermal collectors: a review. Solar Energy 102: 98–115.

Chandrasekar, M. & Senthilkumar, T. 2015. Experimental demonstration of enhanced solar energy utilization in flat PV (PhotoVoltaic) modules cooled by heat spreaders in conjunction with cotton wick structures. Energy 90: 1401–1410.

Chandrasekar, M., Suresh, S., & Bose, A.C. 2010. Experimental studies on heat transfer and friction factor characteristics of Al 2 O 3 /water nanofluid in a circular pipe under laminar flow with wire coil inserts. Experimental Thermal and Fluid Science, 34(2): 122–130.

Chol, S.U.S. (1995). Enhancing thermal conductivity of fluids with nanoparticles. ASME-PublicationsFed 231: 99–106.

Chow, T.T. 2010. A review on photovoltaic/thermal hybrid solar technology. Applied energy 87(2): 365–379.

He, W., Chow, T.T., Ji, J., Lu, J.P., Pei, G., & Chan, L.S. 2006. Hybrid photovoltaic and thermal solar-collector designed for natural circulation of water. Applied energy 83(3): 199–210.

Hegazy, A.A. 2000. Comparative study of the performances of four photovoltaic/thermal solar air collectors. Energy Convers Manage 41: 861–881. Hussein, A.K. 2016. Applications of nanotechnology to improve the performance of solar collectors–Recent advances and overview. Renewable and Sustainable Energy Reviews 62: 767–792. Kasaeian, A., Eshghi, A.T., & Sameti, M. 2015. A review on the applications of nanofluids in solar energy systems. Renewable and Sustainable Energy Reviews 43: 584–598. Koca, A., Oztop, H.F., Koyun, T., & Varol, Y. 2008. Energy and exergy analysis of a latent heat storage system with phase change material for a solar collector. Renewable Energy 33(4): 567–574. Ma, T., Yang, H., Zhang, Y., Lu, L., & Wang, X. 2015. Using phase change materials in photovoltaic systems for thermal regulation and electrical efficiency improvement: A review and outlook. Renewable and Sustainable Energy Reviews 43: 1273–1284. Otanicar, T.P. & Golden, J.S. 2009. Comparative environmental and economic analysis of conventional and nanofluid solar hot water technologies. Environmental science & technology 43(15): 6082–6087. Raman, V. & Tiwari, G.N. 2008. Life cycle cost analysis of HPVT air collector under different Indian climatic conditions. Energy Policy 36(2): 603–611. Saitoh, H., Hamada, Y., Kubota, H., Nakamura, M., Ochifuji, K., Yokoyama, S., & Nagano, K. 2003. Field experiments and analyses on a hybrid solar collector. Applied Thermal Engineering 23(16): 2089–2105. Shukla, A., Buddhi, D., & Sawhney, R.L. 2009. Solar water heaters with phase change material thermal energy storage medium: a review. Renewable and Sustainable Energy Reviews 13(8): 2119–2125. Shyam, Tiwari, G.N., Fischer, O., Mishra, R.K., & Al-Helal, I.M. 2016. Performance evaluation of N-PhotoVoltaic Thermal (PVT) water collectors partially covered by photovoltaic module connected in series: An experimental study. Solar Energy 134: 302–313. Skoplaki, E. & Palyvos, J.A. 2009. On the temperature dependence of photovoltaic module electrical performance: A review of efficiency/power correlations. Solar energy 83(5): 614–624. Tian, Y. & Zhao, C.Y. 2013. A review of solar collectors and thermal energy storage in solar thermal applications. Applied Energy 104: 538–553. Tiwari, G.N., Fischer, O., Mishra, R.K., & Al-Helal, I.M. (2016). Performance evaluation of N-photovoltaic thermal (PVT) water collectors partially covered by photovoltaic module connected in series: An experimental study. Solar Energy, 134, 302–313. Tiwari, G.N., Rai, S.N., Ram, S., & Singh, M. 1988. Performance prediction of PCCM collection-cumstorage water heater: quasi-steady state solution. Energy conversion and management 28(3), 219–223. Tonui, J.K. & Tripanagnostopoulos, Y. 2007. Improved PV/T solar collectors with heat extraction by forced or natural air circulation. Renewable energy 32(4): 623–637. Tyagi, V.V., Kaushik, S.C., & Tyagi, S.K. 2012. Advancement in solar PhotoVoltaic/Thermal (PV/T) hybrid collector technology. Renewable and Sustainable Energy Reviews 16(3): 1383–1398. Zondag, H.A. De Vries, D.W. Van Helden, W.G.J. Van Zolingen, R.J.C. & Van Steenhoven, A.A. 2003. The yield of different combined PV-thermal collector designs. Solar energy 74(3): 253–269.

A practical method for improving the coherence degree between SAR images

Chang, Z., Zhang, J., Gong, H. et al. (2007). ‘Maximal effective baseline’ for conventional SAR interferometry. International Journal of Remote Sensing, 28(24), pp. 5603–5615.

Chen, E.X., Li, Z.Y. and Chen, X.J. 2000. Generating DEM from SAR interferometry and elevation error correction. High Technique Communication 10, pp. 57–63.

Just, D. and Bamler, R. 1994. Phase statistics of interferograms with applications to synthetic aperture radar. Applied Optics 33 (20), pp. 4361–4368.

Rott, H. and Nagler T. 2006. The contribution of radar interferometry to the assessment of landslide hazards. Advances in Space Research 37, pp. 710–719. Stramondo, S., Moro, M., Tolomei, C., Cinti, F.R. and Doumaz F., 2005. InSAR surface displacement field and fault modelling for the 2003 Bam earthquake (southeastern Iran). Journal of Geodynamics 40, pp. 347–353. Wang, C., Zhang, H. and Liu Z. 2002. Spaceborn Synthetic Apture Radar Interferometry (Beijing: Science Press), pp. 48–49. Zebker, H.A. and Villasenor, J. 1992. Decorrelation in interferometric echoes. IEEE Transactions on Geoscience and Remote Sensing 30, pp. 950–959.

Smart management and control of household appliances

Table 3. Comparison of the cost of electricity.

Without SHM	37.59 yuan
SHM control	32.73 yuan

Research and application of online monitoring and positioning systems for partial discharge of high-voltage cables

Wang Zhenhao, Pang Dan, Zhang Xilin, etc.: Desing of High Voltage Power Cable Real-time Mornitoring System Function [M]. IIICEC 2015. 99-102.

Wang Zhenhao, Pang Dan, Zhang Xilin, etc.: The Hardware design of Partical Discharge On-line Mornitering System in High voltage Cable [M]. Applied Mechanics and Materials, Vols. 672-674, 2014: 822-826. Zhang Xilin, Wang Zhenhao, Huang Zhongying: The Hardware design of Partial Discharge On-line Monitoring System in High voltage Cable High voltage cables partical discharge on-line mornitering system software design [M]. Applied Mechanics and Materials, Vols. 672-674, 2014: 810-813.

The numerical analysis of rainfall erosivity irregularity in Zhejiang province

Figure 6. The area composition in special deviation

index intervals.

China Steel Construction Society (2013). Technical specification for modular freight container building. CECS 334: 2013.

Gong X.L. & Zhang Y.K. (2010). Transformation from container to building: an attempt of the sustainable building development. J. World Architecture. 10:124-127.

Li N.C. & Zhang X.Z. (1992). Design and construction of box buildings. J. Architectural Journal. 12:22-27, 1992.

Lu Y. (2014). Structural design technology of container buildings. J. Industrial Constructions. 02:130-136+97.

Series 1 freight containers-Classification. GB/T 1413-2008.

Xu Z.H. (2008). Final destination of secondhand container. J. Containerization. 19(5):34-35.

Design of a reflective pulse oximetry sensing system based on the semi-active RFID tag

Figure 8. The results of error analysis of the system.

Research of the long-range greenhouse environment monitoring system based on the cloud technology

Ai, Q., Chen, C., “Green House Environment Monitor Technology Implementation Based on Android Mobile Platform”, IEEE Conferece Publications. Pages (s):5584-5587, 2011. Guo Wenchuan, Cheng Hanjie, Li Ruiming, et al. Greenhouse environmental information monitor system based on wireless sensor network [J]. Journal of agricultural machinery, 41, 181-185 (2010). Li Haisheng. Remote monitoring system based on GSM short message [D]. Yanshan University, (2005). Li Li, Liu Gang, Design of greenhouse environment monitoring system based on Bluetooth technology[J]. Journal of agricultural machinery, 39, 97-100 (2006). Li Yuan. Design and research of wireless environment monitoring system based on ZigBee [D]. Hunan University, (2009). Liu Lufeng. Cloud platform construction research for university library discipline service under big data environment [J]. Library Journal, 03: 99-101+108 (2016). Liu Tong, Li Yao, He Hongwei, Ma Jianshe. Closed LED plant factory monitoring and control system based on ZigBee[J]. Journal of Agricultural Mechanization, 37, 75-81 (2015). Lu Hui, Gao Hongbo, Zhang Fengman, et al. Job scheduling algorithm based on resource prediction in Hadoop cloud platform [J]. Computer application research, 08:1-6 (2016). Miao Fengjuan, Tao Bairui, Liu Tongkai, et al. Design of greenhouse environment data acquisition and control system based on ARM [J]. Journal of Agricultural Mechanization Research, 37, 138-141 (2015). Mittal, M., Tripathi, G., “Green House Monitor and Control Using Wireless System Network”, VSRDIJEECE, Vol. 2 (6), 2012, 337-345, 2012. Yunseop (James) Kim, Robert G. Evans, and William M. Iversen, “Remote Sensing and Control of an Irrigation System Using a Distributed Wireless Sensor Network,” IEEE Transactions on Instrumentation and Messagement, vol. 57, No. 7, July 2008. Zhang Meng, Fang Junlong, Han Yu. Design of remote monitoring and control system based on ZigBee and Internet for greenhouse group [J]. Journal of Agricultural Engineering, 29, 171-176 (2013). Zhang Xingwei. Research and design of greenhouse environment monitoring system based on WSN [D]. Zhengzhou University, (2013). Zhao Chunjiang, Qu Lihua, Chen Ming, et al. Design of image sensor node for greenhouse environment monitoring based on ZigBee [J]. Journal of agricultural machinery, 43, 192-196 (2012). Zhao Liyan, Xu Liang. Greenhouse environment monitoring system based on GSM short message [J]. Electronic design engineering, 17, 29-31 (2009).

Table 1. Unicast request packet loss rate.

Number	Number of sending data	Back packets	Packet loss rate (%)
1	2000	1995	0.25
2	2000	1996	0.20
3	2000	1996	0.20
4	2000	1993	0.35
5	2000	1995	0.25
6	2000	1994	0.30
7	2000	1991	0.45
8	2000	1992	0.40

Negative emotion speech classification for a six-leg rescue robot

Alin, A. Statistical Papers, 50, pp. 711–720 (2009).

Bowden, J.C. e-Science Workshops, Sixth IEEE International Conference, pp. 25–30 (2010).

Chen, M.Y., H. Li. Journal of Chongqing Institute of Technology (Natural Science Edition), 21, pp. 112–114 (2007).

David, R.B. Statistica Sinica, 1, pp. 465–476 (1991).

Ingale, A.B., D.S. Chaudhari. International Journal of Soft Computing and Engineering, 2, pp. 2231–2307 (2012).

Koolagudi, S.G., K.S. Rao. International Journal of Speech Technology, 15, 2, pp. 99–117 (2012).

Lee, C.M., S.S. Narayanan. IEEE Transaction on Speech and Audio Processing, 13, pp. 293–303 (2005).

Mendel, J. Proc. IEEE, 79, pp. 278–304 (1991).

Sravros, N., F. Nikos. IEEE Transactions on affective computing, 3, pp. 116–125 (2012).

Valero, A., C. Saracini, P de la Puente, et al. Proceedings Second International Symposium on New Frontiers in Human-Robot Interaction, pp. 120–127 (2010).

Ververidis, D., C. Kotropoulos. Speech Communication, 48, pp. 1162–1181 (2006).

Nonlinear vibration of a commensurate fractional-order happiness system

Ahmad, W.M., R. EI-Khazali, Chaos, Solitons Fractals 33 (2007).

Guo, Z.J., W. Zhang, Appl. Math. Model. 40 (2016).

Ju, P.J., Appl. Math. Model. 39 (2015).

Leung, A.Y.T., Z.J. Guo, Commun Nonlinear Sci Numer Simulat 16 (2011).

Monje, C.A., Y. Chen, B.M. Vinagre, et al., Fractionalorder systems and controls: fundamentals and applications. London: Springer-Verlag, (2010).

Oldham, K.B., J. Spanier, The fractional calculus, Academic Press, New York, (1974).

Sommese, A.J., C.W. Wampler, Numerical solution of systems of polynomials arising in engineering and science, World Scientific Press, Singapore, (2005).

Song, L., S.Y. Xu, J.Y. Yang, Commun Nonlinear Sci Numer Simulat 15 (2010).

Sprott, J.C., Psychology, and Life Sciences 9 (2005).

Sun, Y.X., X.H. Qiao, B.C. Bao, J. Circuits Syst. 17 (2012).

Simulation analysis of airdrop cargo extraction posture

Figure 9. Displacement curve in the Z direction of

nodes 807 and 808 in working condition 3.

Figure 10. Displacement difference curve in the Z direc

tion of nodes 807 and 808 in working condition 2.

Research on the comparison between the compressed UF-tree algorithm and the UF-Eclat algorithm based on uncertain data

Aggarwal C C. Li Y. Wang J Y. et al. Frequent pattern mining with uncertain data. Proc of the 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining [C]. New York: ACM Press, (2009): 29-38.

Aoying Zhou. Cheqing Jin. Guoren Wang. A Survey on the Management of Uncertain Data. CJOC, 32, 1(2009): 1-16.

Chaoquan Chen. Jiahuan Huang. Yunhui Jiang. Mining frequent items in uncertain dataset using compressed UF-tree. AROC, 31, 3(2014): 716-719.

Chui C K. Kao B. Hung E. Mining frequent itemsets from uncertain data. Proc of the 11th Pacific-Asia Conference on Knowledge Discovery and Data Mining, (2007): 47-58.

Han J W. Kamber M. Data mining: Concepts and Technologies Second Edition (2007): 155-156.

Ian H. Witten. Eibe Frank. Data Mining: Practical Machine Learning Tools and Technologies Second Edition. (2005): 76-81.

Leung C K S. Carmichael C L. Hao B. Efficient mining of frequent patterns from uncertain data. Data Mining Workshops, (2007). ICDM Workshops 2007. Seventh IEEE International Conference on. IEEE, (2007): 489-494.

Lixin Liu. Xiaolin Zhang. Yimin Mao. Efficient mining probabilistic frequent itemset in uncertain database. AROC, 29, 3(2012):841-843.

Research on the sync technology of the ARINC659 bus redundancy fault-tolerant system

Figure 9. Flow chart of the frame level sync process.

Identity recognition approach based on the improved phase congruency of the gait energy image

Chao-Rong Li, Jian-Ping Li, Xing-Chun Yang, et al. Gait recognition using the magnitude and phase of quaternion wavelet transform [C]. International Conference on Wavelet Active Media Technology and Information Processing. 2012:322-324.

Han J, Bhanu B. B. Individual recognition using gait energy image [J]. IEEE Transactions on Pattern Analysis & Machine Intelligence, 2006, 28(2):316-322.

Kovesi P. Image Features From Phase Congruency [J]. Journal of Computer Vision Research, 1999, 1(1): 115-116.

Mohan Kumar H P, Nagendraswamy H S. LBP for gait recognition: A symbolic approach based on GEI plus RBL of GEI [C]. International Conference on Electronics and Communication Systems. 2014:1-5. Nixon M S, Carter J N. Advances in automatic gait recognition [C]. IEEE International Conference on Automatic Face & Gesture Recognition. 2004:11-16. Rida I, Almaadeed S, Bouridane A. Improved gait recognition based on gait energy images [C]. ICM 2014. 2014:40-43. Theodoridis S, Koutroumbas K. Pattern Recognition (Fourth Edition) [M]. 2009. Zhang Y Y, Jing L I, Jiang S M, et al. Local features of gait energy image through the method of texture analysis [J]. Jilin Daxue Xuebao, 2013, 43:193-198.

Figure 7. Histograms of original image and encrypted image: (a) R component for original image; (b) R component for encrypted image; (c) G component for original image; (d) G component for encrypted image; (e) B component for original image; (f) B component for encrypted image.

Table 1. Correlation coefficient.

Image	Correlation coefficient Horizontal direction		Vertical direction	
R	0.99468	0.0020953	0.99547	0.0040664
G	0.99334	0.00094717	0.99433	0.0023295
B	0.99320	0.0023591	0.99419	0.0022439

Ground operation efficiency analysis of a large airport airfield based on computer simulation

Chen, X. Research on capacity evaluation and optimization methods at airport airside, PhD thesis, Nanjing University of Aeronautics & Astronautics (2007).

Chen, Y., Cao, Y. and Zhou, Y. Estimation of Beijing international airport capacity, Flight Dynamics, 23(4), pp. 86–89, (2005).

Gao, W. and Huang, C.W. Research on capacity evaluation for Chongqing TMA, Journal of Civil Aviation Univ. of China, 28(5), pp. 1–4, (2010).

Gao, W. and Jiang, S.Y. Simulation study on closely spaced parallel runway analysis using SIMMOD plus, in Proc. 2010 International Conference on Intelligent Computation Technology and Automation, (Los Alamitos, CA, USA, 2010).

Gilbo, E.P. Airport capacity: representation, estimation, optimization, IEEE Transactions on Control Systems Technology, 1(3), pp. 144–154, (1993). Huang, A.S., Schleicher, D. and Hunter, G. Future flight demand generation tool, in Proc. AIAA 4th Aviation Technology, Integration and Operations (ATIO) Forum, (Chicago, IL, USA, 2004). Neufville, R.D. and Odoni, A.R. Airport systems planning, designs, and management (McGraw-Hill, New York, 2002). Wang, C., Zhang, X.Y. and Xu, X.H. Simulation study on airfield system capacity analysis using SIMMOD, in Proc. 2008 International Symposium on Computational Intelligence and Design, (Wuhan, China, 2008). Yu, H.Y., Hu, H.Q. and Yao, J.J. Computer emulation methods for aviation capacity evaluation of airports, Air Traffic Management, 2, pp. 21–25, (2009). Yu, J. and Pu, Y. Runway capacity probability model and capacity curve, Journal of Traffic and Transportation Engineering, 2(4), pp. 99–102, (2002).

Matrix search algorithm of robust common quadratic Lyapunov function for uncertain switched systems

Abou Al-Ola, O.M., Fujimoto, K., Yoshinaga, T., 2011. Common Lyapunov function based on kullbackcleibler divergence for a switched nonlinear system. Mathematical Problems in Engineering 2011(3): 1-12.

Aleksandrov, A.Y., Chen, Y., Platonov, A.V., Zhang, L., 2011. Stability analysis for a class of switched nonlinear systems. Automatica 47(10): 2286-2291.

Aleksandrov, A.Y., Murzinov, I.E., 2012. On the existence of a common Lyapunov function for a family of nonlinear mechanical systems with one degree of freedom. Nonlinear Dynamics & Systems Theory 2(2): 137-144.

Beldiman, O., Bushnell, L., 1999. Stability, linearization and control of switched systems, in: Proc. American Control Conference, pp. 2950-2955.

Ben Salah, J., Valentin, C., Jerbi, H., 2015. Quadratic common Lyapunov function design for planar linear switched system stabilization, in: Control Conference (ECC), 2009 European.

Branicky, M., 1994. Stability of switched and hybrid systems, in: Proc.33rd IEEE Conf. Decision and Control, pp. 3498-3503.

Branicky, M., 1997. Stability of hybrid systems: state of the art, in: Proceedings of the 36th Conference of Decision and Control, pp. 120-125.

Branicky, M., 1998. Mutiple Lyapunov functions and other analysis tools for switched and hybrid systems. IEEE Trans. Automatic Control 43(4): 475-482.

Bykkoroglu, T., 2012. Common diagonal Lyapunov function for third order linear switched system. Journal of Computational & Applied Mathematics 236(15): 3647-3653.

Chen, G., Yang, Y., 2014. Finite-time stability of switched positive linear systems. International Journal of Robust & Nonlinear Control 24(1): 179-190.

Chen, Y., He, Z., Aleksandrov, A.Y., 2011. Existence of common Lyapunov function based on KKM lemma for switched Persidskii-type systems, in: Electric Information and

Control Engineering (ICEICE), 2011 International Conference on, pp. 371–374.

Cheng, D., Guo, L., Huan, J., 2003. On quadratic Lyapunov functions. IEEE Trans. Automatic Control 48(5): 885–890.

Cheng, D., Zhu, Y., Hu, Q., 2006. Stabilization of switched systems via common Lyapunov function, in: Proceedings of the World Congress on Intelligent Control and Automation (WCICA), pp. 183–187.

Duarte-Mermoud, M.A., Ordonez-Hurtado, R.H., Zagalak, P., 2012. A method for determining the nonexistence of a common quadratic Lyapunov function for switched linear systems based on particle swarm optimisation. International Journal of Systems Science 43(11): 1–19.

Fierro, R., Lewis, F., Abdallah, C., 1996. Common, multiple, and parametric Lyapunov functions for a class of hybrid dynamical systems, in: Proc. the 4th IEEE Mediterranean Symp. New Directions in Contr. and Automat., pp. 77–82. Gu, Z., Liu, H., Liao, F., 2009. A common Lyapunov function for a class of switched descriptor systems, in: Informatics in Control, Automation and Robotics, 2009. CAR '09. International Asia Conference on, pp. 29–31. Liberzon, D., 2003. Switching in Systems and Control. Birkhauser Boston. Liberzon, D., Morse, J., 1999. Stability of switched systems: a lie algebraic condition. Systems & Control Letters 37(3): 117–122. Liberzon, D., 2003. Switching in Systems and Control. Boston: Birkhauser. Lin, H., Antsaklis, P.J., 2009. Stability and stabilizability of switched linear systems: A survey of recent results. IEEE Transactions on Automatic Control 54(2): 308–322. Liu, X., 2009. Stability analysis of switched positive systems: A switched linear copositive Lyapunov function method. IEEE Transactions on Circuits & Systems II Express Briefs 56(5): 414–418. Liu, X., Zhao, X., 2016. Stability analysis of discretetime switched systems: a switched homogeneous Lyapunov function method. International Journal of Control 89(2): 297–305. Mancilla-Aguilar, J., 2000. A condition for the stability of switched nonlinear systems. IEEE Trans. Automatic Control 45(11): 2077–2079. Margaliot, M., 2006. Stability analysis of switched systems using variational principles: an introduction. Automatica 42(12): 2059–2077. Marga liot, M., Liberzon, D., 2006. Liealgebraic stability conditions for nonlinear switched systems and differential inclusions. Systems & Control Letters 55(1): 8–16. Narendra, K., Balakrishnan, J.A., 1994. A common Lyapunov function for stable lti systems with commuting a-matrices. IEEE Trans.

Automatic Control 39(12): 2469-2471. Ooba, T., Funahashi, Y., 1997. Two conditions concerning common quadratic Lyapunov functions for linear systems. IEEE Trans. Automatic Control 42(5): 719-721. Sun, C., Fang, B., Huang, W., 2011. Existence of a common quadratic Lyapunov function for discrete switched linear systems with m stable subsystems. IET Control Theory & Applications 5(3): 535-537. Tong, Y., Zhang, L., Shi, P., Wang, C., 2013. A common linear copositive Lyapunov function for switched positive linear systems with commutable subsystems. International Journal of Systems Science 44(11): 1994-2003. Wang, C., Shen, T., Ji, H., 2014. Common quadratic Lyapunov function for two classes of special switched linear systems. IEICE Transactions on Information & Systems E97.D(2): 175-183. Yu, M., Gao, Y., 2009. The computation of a common standard quadratic Lyapunov function for tridiagonal system. Adv. Differ. Equ. control Process 3(1): 19-31. Zhai, G., 2009. A common Lyapunov function approach to analysis and design of switched linear descriptor systems, in: Proceedings of the Japan Joint Automatic Control Conference, pp. 155-155. Zhu, Y., Cheng, D., Qin, H., 2007. Constructing conmmon Lyapunov functions for a class of stable matrices. Acta Automatica Sinica 33(2): 202-204.

HFSS simulation of RCS based on MIMO system

Figure 11. Average RCS results of last four cases.

Table 1. RCS values of four cases.

Object rough localization of tongue images via clustering and gray projection

Anastasi, J.K., L.M. Currie, G.H. Kim, Understanding diagnostic reasoning in TCM practice: tongue diagnosis, Altern. Ther. Health M., 15(3), 18–28 (2009).

Abe, S., K. Ishihara, M. Adachi, K. Okuda, Tonguecoating as risk indicator for aspiration pneumonia in edentate elderly, Arch. Gerontol. Geriatr, 47(2), 267–275 (2008).

Hoefert, S., E. Schilling, S. Philippou, H. Eufinger, Amyloidosis of the tongue as a possible diagnostic manifestation of plasmacytoma, Mund Kiefer Gesichtschir, 3(1), 46–49 (1999).

Hsu, C.H., M.C. Yu, C.H. Lee, T.C. Lee, S.Y. Yang, High eosinophil cationic protein level in asthmatic patients with Heat Zheng, AM. J. Chin. Med., 31(2), 277–283 (2003). Kirschbaum, B. Altas of Chinese tongue diagnosis. Seattle, WA: Eastland (2000). Ning, J., D. Zhang, C. Wu, F. Yue, Automatic tongue image segmentation based on gradient vector flow and region merging, Neural Comput. Appl., 21(8), 1819–1826 (2012). Pang, B., D. Zhang, N. Li, K. Wang, Computerized tongue diagnosis based on Bayesian networks, IEEE Trans. Biomed. Eng., 51(10), 1803–1810 (2004). Shi, M., G. Li, F. Li, C2G2FSnake: automatic tongue image segmentation utilizing prior knowledge, Sci. China Inf. Sci., 56(9), 1–14 (2013). Yasnoff, W. A., J.K. Mui, J.W. Bacus, Error measures for scene segmentation, Pattern Recognit., 9(4), 217–231 (1977). Zhang, L, Qin J. Tongue-image segmentation based on gray projection and threshold-adaptive method, Journal of Clinical Rehabilitative Tissue Engineering Research, 14(9), 1638–1641 (2010).

Multi-sensor attitude algorithm design for a low-cost strap-down system based on the direction cosine matrix

Anonymous. Multi MEMS sensor development board [J]. Electronics Weekly (2013). Chiemela Onunka, Glen Bright, Riaan Stopforth. USV attitude estimation: an approach using quaternion in direction cosine matrix [J]. Robotica (2014). Chingiz Hajiyev, Demet Cilden, Yevgeny Somov. Gyrofree attitude and rate estimation for a small satellite using SVD and EKF [J]. Aerospace Science and Technology (2016). Development of sewer pipe measurement system by vehicle equipped with low-priced MEMS sensor [J]. Mechanical Engineering Journal (2016). Francesco Cappello, Roberto Sabatini, Subramanian Ramasamy. A low-cost and high performance navigation system for small RPAS applications [J]. Aerospace Science and Technology (2016). Gaoge Hu, Shesheng Gao, Yongmin Zhong, Bingbing Gao, Aleksandar Subic. Matrix weighted multisensor data fusion for INS/GNSS/CNS integration [J]. Proceedings of the Institution of Mechanical Engineers (2016). Gaygysyz Jorayev, Karol Wehr, Alfonso Benito-Calvo, Jackson Njau, Ignacio de la Torre. Ji Hyoung Ryu, Ganduulga Gankhuyag, Kil To Chong, Hana Vaisocherova. Navigation System Heading and Position Accuracy Improvement through GPS and INS Data Fusion [J]. Journal of Sensors, 2016, 2016. Joon Goo Park, Jang Gyu Lee, Chan Gook Park. SDINS/GPS in-flight alignment using GPS carrier phase rate [J]. GPS Solutions (2004). Liu, Yu, Xiang, Gaolin, Cao, Yang, Wang, Ruijie, Gong, Dawei. Research on the Temperature Compensation Algorithm of Zero Drift in MEMS Gyroscope Based on Wavelet Transform and Improved Grey Theory [J]. Sensors & amp; Transducers (2014). Mosavi, M. R., M. Soltani Azad, I. EmamGholipour. Position Estimation in Single-Frequency GPS Receivers Using Kalman Filter with Pseudo-Range and Carrier Phase Measurements [J]. Wireless Personal Communications (2013). Robert Bogue. Recent developments in MEMS sensors: a review of applications, markets and technologies [J]. Sensor Review (2013). Sousa, R., P. Oliveira. Joint Positioning and Navigation Aiding Systems for Multiple Underwater Robots [J]. IFAC Proceedings Volumes (2009). Stefano Corbetta, Ivo Boniolo, Sergio M. Savaresi. Attitude estimation of a motorcycle via Unscented Kalman Filter [J]. IFAC Proceedings Volumes (2010). Vaibhav G. Awale, Hari B. Hablani. Fusion of Navigation Solutions from Different Navigation Systems for an Autonomous Underwater Vehicle [J]. IFAC Proceedings Volumes (2014). Yiqun Dong, Youmin Zhang, Jianliang Ai. Full-altitude attitude angles envelope and model predictive controlbased attitude angles protection for civil aircraft [J]. Aerospace Science and Technology (2016). Zhongxu Hu, Barry Gallacher. Extended Kalman filtering based parameter estimation and drift compensation for a MEMS rate integrating gyroscope [J]. Sensors & amp; Actuators: A. Physical (2016).

A study on personalized information push service based on context awareness and spatio-temporal correlation

Adomavicius, G., R. Sankaranarayana, S. Sen. Incorporating contextual information in recommender systems using a multidimensional approach. ACM Transactions on Information Systems, 23(1): 104–145 (2005). Baltrunas, L. et al. Context-aware places of interest recommendations for mobile users. A Springer-Verlag Berlin Heidelberg (2011). Feng, J.H. Personalized WeChat recommendation system based on indoor WLAN localization. Computer Engineering and Science, 36(10):1925–1931 (2014). Gavalas, D., M. Kenteris. A web-based pervasive recommendation system for mobile tourist guides. Personal Ubiquitous Computing, 15(7):759–770 (2011). Ge, G.L., L.Y. Yuan, X.C. Wang. Personalized user interest modeling based on context aware. Application Research of Computer, 33: 1–6 (2016). Gong, X.W. The design and implementation of mobile learning platform based on context awareness. Tianjin: TianJin University, 38–45 (2011). Li, X.Y. The research and design of mobile shopping assistant based on context awareness. Dalian: Dalian Maritime University (2012). Shang, C.L. The study on time series feature based on bayesian spam filtering. Guangzhou: South China University of Technology (2012). Wang, L.C., X.W. Meng, Y.J. Zhang. Context-aware recommender systems. Journal of Software, 23(1): 1–20 (2012).

Design of a new in-flight entertainment terminal

Figure 6. Working flow of big data processing.

The countdown traffic light error detection method based on union color spaces and fuzzy PCA

Table 2. Experiment results of countdown character recognition.

Method	Recognition rate	Recognition time (ms)
Our method	0.94	4.2
Traditional PCA method	0.87	3.8

Study of the optimization evaluation algorithm of improved genetic-BP neural network in the monitoring and diagnosis of shortwave transmitting system

Table 4. Summary of simulation results.

Number	Output of traditional BP network	Output of genetic BP network	Actual state	State description
1	1.0210	1.0107	1	It works normally when transmission starts
2	2.0045	2.0042	2	It works normally during the transmission
3	3.0401	2.9989	3	It works normally when transmission ends
4	6.9875	7.0035	7	It works abnormally when transmission starts
5	7.9986	8.0010	8	It works abnormally during the transmission
6	8.9797	8.9968	9	It works abnormally when transmission ends

Loyalty model in the networked environment based on catastrophe

Daniel Birke, G.M. Peter Swann. Network Effects, network structure and consumer interaction in mobile telecommunications. ITS: 16th European Regional Conference Porto, September 2005. Hahm, J., W. Chu, and J.W. Yoon. “A Strategic Approach to Customer Satisfaction in the Telecommunication Service Market”, Elsevier Science, 1997, 33, pp. 825–828. Jacob Goldenberg, Barak Libai, Eitan Muller, “Talk of the Network-A Complex Systems Look at the Underlying Process of Word-of-Mouth”, Marketing Letters, 12(3), 2001, pp. 211–223. Oliva TA, Oliver RL, MacMillan IC. “A catastrophe model for developing service satisfaction strategies”. Journal of Marketing, 1992, 56, pp. 83–95. Parasuraman, A., Valarie A. Zeithaml, Leonard L. Berry. “A Conceptual Model of Service Quality and Its Implications for Future Research”, Journal of Marketing, 1985. 49(4), pp. 41–50. Thom, R. “Structural Stability and Morphogenesis”, Benjamin-Addison Wesley, New York, 1975. Wang, L.H., M.F. Chen, “Using switching barriers as moderator to explore the relationship between customer satisfaction and customer loyalty”, Master Thesis, Tatung University, 2005. William A. Brock. Discrete Choice with Social Interactions. Review of Economic Studies, 2001. 68: 235–260. Yang, Z.L., R.T. Peterson, “Customer perceived value, satisfaction, and loyalty: the role of switching cost”, Psychology & Marketing, 2004, 21(10), pp. 799–822. Zeeman, E.C. “Catastrophe Theory: Selected Papers (1972–1977)”, Addison-Wesley, New York, 1977.

Research on obstacle avoidance of a mobile robot based on visual information

Figure 5. Trajectory model of robot obstacle

avoidance.

Multifocus image fusion based on defocus map estimation and NSCT

Figure 4. Fusion results of images. A) Left focus image,

B) right focus image, C) region detection map, and D)

fusion results of our method: D1)-D4) fusion results

of Wang (2012), Sun (2013), Maruturi (2014), and Liu

(2015), respectively. Table 1. Objective evaluation of different fusion methods for different multifocus images. Image Evaluation index Multifocus image fusion methods Ref (Maruturi, 2014) Ref (Liu, 2015) Ref (Luigi, 2009) Ref (Lillo, 2008) Ours Images 1 MI 6.9547 7.0390 7.1023 8.2346 8.8162 Q abf 0.7517 0.7183 0.5854 0.7755 0.7827 Images 2 MI 7.2076 7.0077 7.4177 8.7226 8.8343 Q abf 0.6984 0.6428 0.5154 0.7430 0.7457 Images 3 MI 6.2639 5.1960 5.6477 8.2204 8.3232 Q abf 0.7806 0.6355 0.3941 0.8018 0.8023 Images 4 MI 6.3877 6.0883 6.5551 8.1998 8.2313 Q abf 0.7134 0.6209 0.4952 0.7432 0.7447 Li, S., J.T. Kwok, I.W. Tsang, Y. Wang. Fusing images with different focuses using support vector machines [J]. Neural Networks, 2004, 15(6): 2004. Liu, Z., K. Tsukada, K. Hanasaki, Y.K. Ho, and Y.P. Dai. Image fusion by using steerable pyramid [J]. Pattern Recognition Letters, 2001, 22(2): 929-939. Liu Cao, Longxu Jin, et.al. Multi-Focus Image Fusion Based on Spatial Frequency in Discrete Cosine Transform Domain [J]. IEEE Signal Processing Letters, 2015, 22(2): 220-224. Luigi, T. De Luca, Propulsion physics (EDP Sciences, Les Ulis, 2009). Maruturi Haribabu, C.H. Hima Bindu Dr. K. Satya Prasad. Image Fusion with Biorthogonal Wavelet Transform Based On Maximum Selection and Region Energy [C]. International Conference on Computer Communication and Informatics, 03-05, 2014. Nencini, F., A. Garzelli, S. Baronti, and L. Alparone. Remote sensing image fusion using the curvelet transform [J]. Information Fusion, 2007, 8(2): 143-156. Pena, J.M., J.A. Lozano, and P. Larranaga. An empirical comparison of four initialization methods for the K-means algorithm [J]. Parrern Recognition Letters, 1999, 20: 1027-1040. Shaojie Zhuo Terence Sim. Defocus Map Estimation from a Single Image [J]. Preprint submitted to Pattern Recognition, 2011, 44(9): 1852-1858. Xiangda Sun 1, Junping Du 1, Qingping Li, 1. et al. Improved Energy Contrast Image Fusion based on Nonsubsampled Contourlet Transform [C]. Industrial Electronics and Applications (ICIEA), 8th, 2013. Yang Ning Ou, Ning Zou, Tong Zhang. et.al. Multifocus Image Fusion Based on NSST and Focused Area Detection,

[J]. Computer Application, 2015, 35(2): 490-494. Yong Yang, Song Tong, Shuying Huang. et.al. Multifocus Image Fsuion Based on NSCT and Focused Area Detection [J]. IEEE Sensors Fournal, 2015, 15(5): 2824-2838.

A new and effective image retrieval method based on representative regions

Table 1. Precision of the retrieval by different methods

when K = 20.

Category CTD CIRS (2011) Vimina (2013) Rashno (2015) Lin (2009) Proposed method

African 56.20 71.52 44.80 68.30 62.00

Beach 53.60 43.60 47.20 54.00 52.50

Building 61.00 53.55 53.40 56.20 60.00

Buses 89.30 85.30 73.40 88.80 90.50

Dinosaurs 98.40 99.55 99.80 99.30 99.80

Elephants 57.80 59.10 56.80 65.80 75.00

Roses 89.90 90.95 87.50 89.10 94.50

Horses 78.00 92.40 70.70 80.30 94.50

Mountains 51.20 38.35 39.30 52.20 47.50

Food 69.40 72.40 61.00 73.30 75.00

Average precision 53.24 70.67 63.39 72.70 75.13

Figure 5. Average precision of different methods.

Semantic similarity research on case retrieval based on ontology

Figure 4. Window distances when a = 0.61, b = 0.39.

Table 3. Average distance of the first three windows.

	OGM	BGM	RGM	MGM
Average distance	1.7333	2.0667	1.1333	0.8

Figure 5. Window distances when a = 0.61, b = 0.39.

Table 4. Average distance when a = 0.61, b = 0.39.

	OGM	BGM	RGM	MGM
Average distance	3.1667	2.8500	3	2.2500

Vibration energy acquisition and storage management system based on MSMA

Aljanaideh O, AI janaideh M, Rakheja S, et al, Compensation of rate-dependent hysteresis nonlinearities in a magnetostrictive actuator using an inverse Prandtl-Ishlinskii model [J]. Smart Materials and Structures, Vol. 22, No. 2, 27–36, 2013.

John Kymissis, Clyde Kendall, Joseph Paradiso, Neil Gershenfeld. Parasitic Power Harvesting in Shoes [C]. the Second IEEE Internetional Conference on Wearable Computing, IEEE Computer Societu Press, 2000, 132–139.

Qingxin Zhang, Jian Li, Li Yu, Luping Wang. Thermo Magneto Mechanical Model and Simulation of Vibration Generator of Magnetically Controlled Shape Memory Alloy. The 27th Chinese Control and Decision Conference (2015 CCDC), May 23–25, 2015, Qingdao, China. pp. 4979–4983. Wen Yumei, Wu Hanzhong, Li ping, Yin Wenjian, A selfpowered power supply management circuit using frequency conversion network [J]. Acta Electronica Sinica, Vol. 40, No. 11, 2324–2329, 2012. Zhang Q, Li J, Yu L, et al, Thermo magneto mechanical model and simulation of vibration generator of magnetically controlled shape memory alloy [C]. Control and Decision Conference (CCDC), 2015 27th Chinese. IEEE, 2015. Zhang Qingxin, Yu Li, Gao Yunhong. “Vibration energy gathering power management system based on DC/ DC boost converter circuit”, 2016 Chinese Control and Decision Conference (CCDC), 2016. Zhang, Qing Xin, Lu Ping Wang, Yu Huan Xie, and Zhan Bo Cui. “Vibration Energy Harvesting System Based on Magnetically Controlled Shape Memory Alloy”, Advanced Materials Research, 2013.

Architecture of the on-chip debug module for a multiprocessor system

ARM, AHB-Lite Protocol Specification, http://infocenter.arm.com

Benini, L., D. Bertozzi, A. Bogliolo, F. Menichelli, M. Olivieri, MPARM: Exploring the Multi-Processor SoC Design Space with SystemC, 《Journal of Vlsi Signal Processing》, pp. 169–182 (2005).

Maier, K.D. On-chip debug support for embedded Systems-on-Chip, International Symposium on Circuits & Systems, V-565–V-568 vol.5 (2003).

Portelagarcía, M., C. Lópezongil, M.G. Valderas, L. Entrena, Fault Injection in Modern Microprocessors Using On-Chip Debugging Infrastructures, IEEE Transactions on Dependable & Secure Computing, pp. 308–314 (2011). Rusu S., Muljono H., Ayers D., et al. Ivytown: A 22 nm 15-core enterprise Xeon processor family, IEEE International Solid-State Circuits Conference Digest of Technical Papers, pp. 102–103, (2014). Seys, S., B. Preneel. ARM: anonymous routing protocol for mobile ad hoc networks, International Journal of Wireless & Mobile Computing pp. 145–155 (2009). Tan Hai, Zhou Xinqin, Tan Chengzhu, A new 3D network-on-chip for many-core system: China, 201210077519 [P]. (2012). Wang Gang, Zhang Shengbing. On-chip debug architecture for MCU-DSP Core based system-on-chip, Computer Science and Automation Engineering (CSAE), IEEE International Conference on 2011, pp. 605–608 (2011). Zhang Peng, Fan Xiaoya, Huang Xiaoping. An on-chip debugging method based on bus access, Signal Processing, Communication and Computing (ICSPCC), IEEE International Conference on 2013, pp. 1–5. (2013).

Load balancing algorithm for computing cluster using improved cultural particle swarm optimization

Bonyadi, M., Z. Michalewicz, Stability Analysis of the Particle Swarm Optimization Without Stagnation Assumption, IEEE Transactions on Evolutionary Computation, 814-819 (2016).

Deng, C., Y. Liu, L. Xu, J. Yang, J. Liu, et al. A MapReduce-based Parallel K-means Clustering for Large-scale CIM Data Verification, Concurrency and Computation Practice and Experience, 28, 11, 3096-3114 (2016).

Ghumman, N., R. Kaur, Dynamic Combination of Improved Max-min and Ant Colony Algorithm for Load Bbalancing in Cloud System, 2015 6th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 1-5 (2015).

Huang, H., J. Guo, B. Wang, An Improved KNN Algorithm Based on Adaptive Cluster Distance Bounding for High Dimensional Indexing, 2012 Third Global Congress on Intelligent Systems (GCIS), 213-217 (2012).

Jain, A., R. Kumar, A Multi Stage Load Balancing Technique for Cloud Environment, 2016 International Conference on Information Communication and Embedded Systems, 1-7 (2016).

Jiang, D., Z. Xu, Z. Lv, A Multicast Delivery Approach with Minimum Energy Consumption for Wireless Multi-hop Networks, Telecommunication Systems, 62, 4, 771-782 (2016).

Kanimozhi, T., K. Latha, An Integrated Approach to Region Based Image Retrieval Using Firefly Algorithm and Support Vector Machine, Neurocomputing, 151, 7, 1099-1111 (2015). Li, X., Z. Lv, J. Xu, B. Zhang, LY. Shi, et al. Xearth: A 3d Gis Platform for Managing Massive City Information, 2015 IEEE International Conference on CIVEMSA, 1-6 (2015). Liu, J., X. Li, An Analysis of the Inertia Weight Parameter for Binary Particle Swarm Optimization, IEEE Transactions on Evolutionary Computation, 666-681 (2016). Lv, Z., T. Yin, H. Song, and G. Chen, Virtual Reality Smart City Based on WebVRGIS, IEEE Internet of Things Journal, 6, 99, 1-1 (2016). Qin, Q., S. Cheng, Q. Zhang, L. Li, Y. Shi, Particle Swarm Optimization With Interswarm Interactive Learning Strategy, IEEE Transactions on Cybernetics, 2238-2251 (2016). Su, N., A. Shi, C. Chen, E. Chen, Y. Wang, Research on Virtual Machine Placement in the Cloud based on Improved Simulated Annealing Algorithm, 2016 World Automation Congress (WAC), 1-7 (2016). Sun, L., S. Yoshida, Y. Liang, A Support Vector and K-Means Based Hybrid Intelligent Data Clustering Algorithm, Ieice Transactions on Information and Systems, 94, 11, 2234-2243 (2011). Wang, B., J. Li, Load balancing task scheduling based on Multi-Population Genetic Algorithm in cloud computing, 2016 35th Chinese Control Conference (CCC), 5261-5266 (2016). Wang, Q., H. Chen, Y. Shen, Decision Tree Support Vector Machine based on Genetic Algorithm for Fault Diagnosis, IEEE International Conference on Automation and Logistics, 2668-2672 (2008). Wu, S., G. Wei, High dimensional data Clustering Algorithm Based on Sparse Feature Vector for Categorical Attributes, 2010 International Conference on Logistics Systems and Intelligent Management, 973-976 (2010). Wu, Y., X. Gao, X. Huang, K. Zenger, A Cultural Particle Swarm Optimization Algorithm, 2010 Sixth International Conference on Natural Computation (ICNC), 2505-2509 (2010). Yan, X., W. Li, W. Chen, W. Luo, C. Zhang, et al. Cultural Algorithm for Engineering Design Problems, IJCSI International Journal of Computer Science Issues, 9, 6, 53-61 (2012). Zhao, J., Z. Ma, Virtual Network Mapping Algorithm based on Load Balancing Multi-objective Particle Swarm Optimization, 11th International Conference on Wireless Communications, Networking and Mobile Computing (WiCOM 2015), 1-5 (2015). Zhao, J., K. Yang, XH Wei, Y. Ding, L. Hu, et al. A Heuristic Clustering-based Task Deployment Approach for Load Balancing Using Bayes Theorem in Cloud Environment, IEEE Transactions on Parallel and Distributed Systems, 27, 2, 305-316 (2016).

An analysis of open source operating systems based on complex networks theory

Akhtar, N., Social Network Analysis Tools, Communication Systems and Network Technologies (CSNT), 2014 Fourth International Conference on, IEEE, 388-392, (2014).

Pagani, G.A., and M. Aiello, The Power Grid as a complex network: A survey, Phys. Stat. Mech. Its Appl., 392, 2688-2700, (2013).

Ren, J., H. Wu, R. Gao, G. Huang, and J. Dong, Identifying Important Nodes in Complex Software NETWORK Based on Ripple Effects, ICIC Express Lett. Part B Appl. Int. J. Res. Surv., 7, 257-264, (2016).

Spinellis, D., and V. Giannikas, Organizational adoption of open source software, J. Syst. Softw., 85, 666-682, (2012).

Temizkan, O., and R. L. Kumar, Exploitation and Exploration Networks in Open Source Software Development: An Artifact-Level Analysis, J. Manag. Inf. Syst., 32, 116-150, (2015).

Toral, S.L., M.R. Martínez-Torres, and F. Barrero, Analysis of virtual communities supporting OSS projects using social network analysis, Inf. Softw. Technol., 52, 296-303, (2010).

Wang, D., C. Song, and A. L. Barabási, Quantifying longterm scientific impact, Science, 342, 127-132, (2013).

Zachor, C., and M. H. Gunes, Software Collaboration Networks, Complex Networks, Springer Berlin Heidelberg, 257-264, (2013).

Zhao, Z., and L. Z. Zhao, Small-world phenomenon: toward an analytical model for data exchange in Product Lifecycle Management, Int. J. Internet Manuf. Serv., 1, 213-230, (2008).

Zheng, X., D. Zeng, H. Li, and F. Wang, Analyzing open-source software systems as complex networks, Phys. Stat. Mech. Its Appl., 387, 6190-6200, (2008).

Design of fitness information recording and network monitoring system based on BDS/GPS and Arduino Yun

Altini M, Vullers R, Van Hoof C, et al. Self-calibration of walking speed estimations using smartphone sensors[C]// Pervasive Computing and Communications Workshops (PERCOM Workshops) 2014 IEEE International Conference on. IEEE, 2014: 10-18.

Basiri A, Lohan E S, Silva P F E, et al. Overview of positioning technologies from fitness-to-purpose point of view[C]// International Conference on Localization and Gnss. 2014: 1-7.

Buttussi F, Chittaro L. Smarter phones for healthier lifestyles: An adaptive fitness game [J]. IEEE Pervasive Computing, 2010, 9(4): 51-57.

A knowledge integration method for innovation teams based on social tagging in an open environment

Arakji, R., R. Benbunan-Fich, M. Koufaris, Decision Support Systems, 47, 3 (2009). Esteban-Gil, A., F. Garcia-Sanchez, R. Valencia-Garcia, J.T. Fernandez-Breis, Expert Systems with Applications, 39, 9715–9722 (2012). Gabriel, H-H., M. Spiliopoulou, A. Nanopoulos, Expert Systems with Applications, 41, (2014). Hao, J-X., R. C-W. Kwok, R. Y-K. Lau, A.Y. Yu, Decision Support Systems, 48, 4 (2010). Hsieh, W-T., J. Stu, Y-L. Chen, S-C.T. Chou, Expert Systems with Applications, 36, 5 (2009). Li, G., Chen Li, J. Feng, L. Zhou, Information Sciences, 179, 21 (2009). Lin, F-R., J-H. Yu, Decision Support Systems, 46, 4 (2009). Ning, X., H. Jin, H. Wu, Information Processing & Management, 44, 2 (2008). Schumaker, R.P., Decision Support Systems, 54, 3 (2013). Tsui, E., W.M. Wang, C.F. Cheung, A.S.M. Lau, Information Processing & Management, 46, 1 (2010). Wei, K., K. Crowston, N.L. Li, R. Heckman, I & M, 51, 3 (2014).

A study on the classification of Yunnan folk songs based on ensemble learning

Breiman, L: Bagging predicitors. Machine Learning Vol. 24(2) (1996), p.123–140. Breiman, L: Random forests. Machine Learning. Vol. 5–32 (2001), p. 45. Cha Zhang, Yunqian Ma: Ensemble machine learning methods and application. Springer (2012). Chao-Hui Hong: Music structure in Yunnan minority music aesthetic. Popular Literature (2014). Ke Sun: The Study of Feature Extraction and Automatic Classification for Chinese Folk Music. Master Dissertation, Dong Hua University (2014). Kuncheva L.I: Combining Pattern Classifications: Methods and Algorithms. John Wiely & Sons, Hoboken, NJ (2004), in press. Kuncheva, L.I., C.J. Whitaker: Measures of diversity in classifier ensembles. Machine Learning Vol. 148–207 (2003), p. 51. Rokach, L: Pattern Classification Using Ensemble Methods. World Scientific. Singapore (2010). Xing-Rong Zhang: Original folk Music of Yunnan. CCOM Publisher (2006). Yan Zhang: The Application of Ramdom Forest for Classifying Environmental Audio Data. Internation Conference on ComputerScience and Software Engineering. (2014) p. 190–196. Zhi-Hua Zhou: Ensemble Methods Foundations and Algorithms. CRC Press (Taylor & Francis Group 2012).

RFID-based elevator positioning algorithm by the virtual reference label

Cui-Cui Yu, The Design and Implementation of Location System Based on Active RFID, Computer Science Department, Beijing University of Posts and Telecommunications. De Angelis A, Nilsson J, Skog I, et al, Metrology & Measurement System 17, 447–460 (2010). Li-Rong Hui, Design and Realization of Elevator Safety Supervision System, Computer Science Department, Jilin University. Tao Jiang, Guang-Jun Liu, Chinese Journal of Construction Machinery 13, 162–167 (2015). Zhi-Feng Lin, RSSI Wireless positioning Technology Based on the Revised Environmental Factors, Applied Mathematics Department, Guangdong University of Technology. Zhi-yong Tao, Sun Lu, Computer Applications and Software, 2014, 123–126.

Design of the omnidirectional mobile robot control system based on dSPACE

A. Gfrerrer. Geometry and kinematics of the Mecanum wheel. J. CAGD. 25, 784–791 (2008).

Ehsan Hashemi. Model-based PI–fuzzy control of fourwheeled omni-directional mobile robots. J. Robot. 59, 930–942 (2011).

Hsuan-Ming Feng. Intelligent omni-directional vision based mobile robot fuzzy systems design and implementation. J. ESWA. 37, 4009–4019 (2010). Lang pen fei. Research on hardware in loop simulation system based on dSPACE [D]. Guangzhou: South China University of Technology, 2013. LIU Han, ZHANG Xian-min. Design of control system for high speed and high precision parallel robot based on dSPACE. J. EDE. 06, 22–11 (2014). SHAO Xue-juan, ZHANG, Jing-gang, ZHAO. Design of experimental platform for motion control system based on dSPACE. J. EEE. 12, 34–06 (2012). Wang Guan. Research on motion control technology of omni-directional mobile platform [D]. Beijing: Beijing Institute of Technology, 2015. Xin xiao shuai. Study on the control strategy of multi drive mode of four wheel independent drive electric vehicle [D]. Chengdu: University of Electronic Science and technology, 2015. XU Li-chuan, YANG Xiao-dong, CONG Pei-qiang. Experimental design of DC motor PWM based on dSPACE. J. EST. 08, 10–04 (2012). Zhang qi. Research on control strategy of permanent magnet brushless DC motor based on dSPACE [D]. Hangzhou: Zhejiang University, 2012.

An adapted NSGA-II approach to the optimization design of oil circuits in a hydraulic manifold block

Chambon, R. and M. Tollenaere, Computer-Aided Design. 23, 213 (1991). Deb, K., A. Pratap, S. Agarwal and T. Meyarivan, IEEE Trans. Evol. Comput. 6, 182 (2002). Fan, X., Y. Lin and Z. JI, Shipbuilding of china, 48, 82 (2007) (In Chinese). Feldmann, D.G., Mechanika, 62, 54 (2006). Ferreira, I., O.D. Weck and P. Saraiva, J. Cabral, Struct. Mutltidiscip. Opt. 41, 62 (2010). Guirardello, R. and R.E. Swaney, Comput. Chem. Eng. 30, 99 (2005). Ito, T., J. Intell. Manuf. 10, 103 (1999). Lee, C.Y., IRE transactions on electronic computers. 9, 346 (1961). Liu, W., S. Tian, C. Jia and Y. Cao, J. Shanghai Univ. (Engl. Ed.), 12, 261 (2008). Park, J. and R.L. Storch, Expert Sys. Appl. 23, 299 (2002). Wong, P.K., C.W. Chuen and T.P. Leung, Am. Soc. Mech. Eng. Fluid Syst. Technol. Div. Publ. FPST. 4,183 (1997).

Quantification of single-event transients due to charge collection using dual-well CMOS technology

Figure 7. Transient voltages of VT2 node induced by the heavy-ion transient current duration.

Figure 8. Charge collection with varying LETs for NMOS and PMOS devices. The significant increase of the charge collected with increasing LETs for PMOS device due to the parasitic bipolar amplification.

Research on missing value processing methods based on advanced community detection

AF Donneau, M Mauer, P Lambert, G Molenberghs, A Albert, Simulation-based study comparing multiple imputation methods for non-monotone missing ordinal data in longitudinal settings. Journal of Biopharmaceutical Statistics, 2015, 25(3): 570–601.

Capocci, A., V.D.P. Servedio, G. Caldarelli, F. Colaiori, Detecting communities in large networks, Physica A 352, 2005, 669–676.

Charu, C., Aggarwal. Social Network Data Analytics [M]. Springer Science + Business Media, LLC (2011).

Clauset, A., M.E.J. Newman, C. Moore, Finding community structure in very large networks, Phys. Rev. E 70 (6), 2004, 066111.

Donetti, L., M.A. Munoz, Improved spectral algorithm for the detection of network communities, in: P. Garrido, J. Maroo, M.A. Munoz (Eds.), Modeling Cooperative Behavior in the Social Sciences, in: American Institute of Physics Conference Series, vol. 779, 2005, 104–107.

Duch, J., A. Arenas, Community detection in complex networks using extremal optimization, Phys. Rev. E 72 (2), 2005, 027104.

Eckmann, J.-P., E. Moses, Curvature of co-links uncovers hidden thematic layers in the World Wide Web, Proc. Natl. Acad. Sci. USA 99 (2002) 5825–5829. Fortunato, S., V. Latora, M. Marchiori, Method to find community structures based on information centrality, Phys. Rev. E 70 (5), 2004, 056104. Girvan, M., M.E.J. Newman, Community structure in social and biological networks, Proc. Natl. Acad. Sci. USA 99 (12) (2002) 7821–7826. Ji Jiachao, Wang Gang, Zhang Xiaoya, et al. The Analysis and Application of the Mixed-effect Patternmixture Model for Data with Missing Not at Random Mechanism. Chinese health statistics, 2013, 32(2): 221–225. Kernighan, B.W., S. Lin, An efficient heuristic procedure for partitioning graphs, Bell Syst. Tech. J. 1970, 49(2): 291–307. Mei, J., S. He, G. Shi, Z. Wang, W. Li, Revealing network communities through modularity maximization by a contraction-dilation method, New J. Phys. 2009, 11 (4), 043025. Merris, Russell, Laplacian matrices of graphs: a survey. Linear algebra and its applications 197 (1994): 143–176. Mohar, Bojan, and Y.

Alavi, The Laplacian spectrum of graphs. Graph theory, combinatorics, and applications 2 (1991): 871–898. Newman, M.E.J., M. Girvan, Finding and evaluating community structure in networks, Phys. Rev. E, 2004, 69 (2), 026113. Twisk, J., MD Boer, WD Vente, M Heymans, Multiple imputation of missing values was not necessary before performing a longitudinal mixed-model analysis. Journal of Clinical Epidemiology, 2013, 66(9): 1022–1028. Van S. Dongen, Graph Clustering by Flow Simulation. PhD thesis, University of Utrecht, 2000. Von U. Luxburg, A tutorial on spectral clustering. Statistics and Computing, 2007, 17(4): 395–416. Yang Linshan, Cao Yiwei, The Comparision of Two Approaches to Bayesian Method for Missing Data in Longitudinal Model-Growth Curve Model for Example. Journal of jiangxi normal university (natural science), 2012, 36(5), 461–465. Ye Sujing, Tang Wenqing, Zhang Minqiang, Cao Weicong, Techniques for Missing Data in Longitudinal Studies and Its Application. Advances in Psychological Science, 2014, 22(12): 1985–1994. Yozgatligil, C., S. Aslan, C. Iyigun, I. Batmaz, Comparison of missing value imputation methods in time series: the case of Turkish meteorological data. Theoretical & Applied Climatology, 2013, 112(1-2): 143–167. Zhang Shuo, Community Detection of Complex Networks Based on the Algebraic Connectivity function [D]. Tianjin University (2012). Zhao Fuqiang, Research on Missing Value Processing Methods in Measuring Customer Satisfaction Index [J]. Journal of statistics and decision, (6), 2013: 75–76. Zhao Fuqiang, Zhao Shuo, He Li, Xing Enjun, Research of cutting edge Based on the algebraic connectivity in complex network [J]. Journal of computer engineering and Applications, 2014, 50 (11): 135–138. Zhou, H., R. Lipowsky, Network brownian motion: A new method to measure vertex-vertex proximity and to identify communities and subcommunities, Lect. Notes Comput. Sci. 3038, 2004, 1062–1069.

Research on the knowledge discovery system in intelligent manufacturing based on the big data

Liu Jiangling. Research on Knowledge Discovery System Faced in Big Data [J]. Information Science, 2014,03:90-92+101.

Ouyang Weimin, Zheng Cheng, Zhang Yan. International Survey of Knowledge Discovery and Data Mining Tools [J]. 2001, 28(3):101-108.

Shouhong Wang HW. Towards Innovative Design Research in Information System [J]. The Journal of Computer Information Systems, 2010, 51(1):11-18.

Studer R, et al. Knowledge Engineering: Principles and Methods [J]. IEEE Transactions on Data and Knowledge Engineering, 1998,25(1-2):161-197.

Wang Ning. Analysis of the Digital Library Knowledge Discovery System under the Big Data Background [J]. Library Work and Study, 2016,(4):58-61.EPL, 84 (2008).

Wu Sizhu. Analysis of Hot Spots in Field of Data Mining and Knowledge Discovery [J]. Journal of Intelligence, 2010, 29(7):18-24.

Zhang Lili. Research from Big Data to Intelligent Manufacturing [J]. China Industry Review, 2016,(7):66-71.

Kim, D., S. Lee, H. Bahn. An Energy-Efficient Positioning Scheme for Location-Based Services in a Smartphone, 2016 IEEE 22nd International Conference on Embedded and Real-Time Computing Systems and Applications, 139–148, (2016).

Lan, C. The Application Research of Broadband Satellite Communication Technology Based on DVB-S2, Master Thesis, Xidian University, (2015).

Lin, Z., L. Li. Technology Development and Applications of Satellite Communications, Modern Electronics Technique, 3, 38–42, (2007).

Liu, C., Y. Shi. Design of ABS-S Modulator System Based on FPGA, Television Technology, 32, 7–9, (2008).

Liu, Y. Research and Design Methods of ABS-S Signal Based on DSP, Master Thesis, Xidian University, (2015).

Shi, Y. M. Yang, J. Ma et al. A New Generation Satellite Broadcasting System in China: Advanced Broadcasting System-Satellite, 2008 4th International Conference on Wireless Communications, Networking and Mobile Computing, 1–4, (2008). Wang, Q. Application and development of Ka broadband satellite communication market, Satellite Application, 8, 49–51, (2015). Yi, Z., S. Liu. An Implementation Scheme of SymbolProcessing in DVB-S Receiver, Bulletin of Science and Technology, 4, 460–463, (2005). Zhang, X. Analysis and Study on the Application of DVB-S2 in the System of Digital Satellite Earth Station, Master Thesis, Inner Mongolia University, (2014). Zhao, Y. Probe into the Practical Coverage Effect of the DBS System, Journal of Shanxi radio & TV University, 4, 102–106, (2015). Zhou, R. Radio and television “village” construction: history, present and future, Modern Communication (Journal of Communication University of China), 5, 45–50, (2006).

Finite element simulation of compression on micropillars

Chou, T.C., T.G. Nieh, S.D. McAdams, G.M. Pharr, and W.C. Oliver, J. Mater. Res., 7, pp. 2774–2784 (1992). Kiener, D., W. Grosinger, G. Dehm and R. Pippan, Acta Mater., 56, pp. 580–592 (2008). Lesuer, D.R., C.K. Syn, O.D. Sherby, J. Wadsworth, J.J. Lewandowski, and W.H. Hunt, Int. Mater. Rev., 41, pp. 169–197 (1996). Liu, C.H., W.Z. Li, and H.D. Li, J. Mater. Res., 11, pp. 2231–2235 (1996). Ng, K.S. and A.H.W. Ngan, Acta Mater., 56, pp. 1712–1720 (2008). Singh, D.R.P., N. Chawla, G. Tang and Y.-L. Shen, Acta Materialia, 58, 6628–6636 (2010). Song, S.X., Y.H. Lai, J.C. Huang, and T.G. Nieh, Appl. Phys. Lett., 94, 061911 (2009). Tang, G., D.R.P. Singh, Y.-L. Shen and N. Chawla, Materials Science and Engineering A, 502, 79–84 (2009). Tang, G., Y.-L. Shen, D.R.P. Singh and N. Chawla, Acta Materialia, 58, 2033–2044 (2010). Tang, G., Y.-L. Shen, D.R.P. Singh and N. Chawla, International Journal of Mechanics and Materials in Design, 4, 391–398 (2008).

A neighborhood search algorithm for the unrelated parallel machine scheduling problem

Al Salem, A., & Armacost, R.L. (2002). Unrelated machines scheduling with machine eligibility restrictions. Qatar University.

Ebenlendr, T., Krčál, M., & Sgall, J. (2008). Graph balancing: a special case of scheduling unrelated parallel machines. In Proceedings of the nineteenth annual ACM-SIAM symposium on Discrete algorithms. 483–490.

Eliiyi, D.T., Korkmaz, A.G., & Çiçk, A.E. (2009). Operational variable job scheduling with eligibility constraints: A randomized constraint-graph-based approach. Technological and Economic Development of Economy. 15(2), 245–266. Leung, J.Y.T., & Li, C.L. (2008). Scheduling with processing set restrictions: A survey. International Journal of Production Economics. 116(2), 251–262. Liao, L.W., & Sheen, G.J. (2008). Parallel machine scheduling with machine availability and eligibility constraints. European Journal of Operational Research. 184(2), 458–467. Lin, C.H., & Liao, C.J. (2008). Minimizing makespan on parallel machines with machine eligibility restrictions. Open Operational Research Journal. 2, 18–24.

A novel medical image enhancement algorithm based on ridgelet transform

Table 1. Results of the experiments.

Image	Method	PSNR
Fig. 4(b)	Enhancement by WT	28.53
Fig. 4(c)	Enhancement by NRT	62.36
Fig. 5(b)	Enhancement by WT	27.19
Fig. 5(c)	Enhancement by NRT	52.31

Significance of deep learning on big data analytics

Chen X W, Lin X, 2014, Big Data Deep Learning: Challenges and Perspectives [J]. IEEE Access, 2:514-525.

Greenspan H, Ginneken B V, Summers R M. Guest Editorial, 2016. Deep Learning in Medical Imaging: Overview and Future Promise of an Exciting New Technique [J]. IEEE Transactions on Medical Imaging, 35(5):1153-1159.

Mcafee A, Brynjolfsson E, 2012. Big data: the management revolution [J]. Harvard Business Review, 90(10):60-6, 68, 128. Najafabadi M M, Villanustre F, Khoshgoftaar T M, et al, 2015. Deep learning applications and challenges in big data analytics [J]. Journal of Big Data, 2(1):1-21. Rumelhart D E, Hinton G E, Williams R J, 2015. Learning In ternal Representations by Error Propagation[J]. Readings in Cognitive Science, 1:399-421. Srinivas S, Babu R V, 2015 Deep Learning in Neural Net works: An Overview[J]. Computer Science. Wu, Yonghui, Schuster, Mike, Chen, Zhifeng, et al, 2016. Google's Neural Machine Translation System: Bridging the Gap between Human and Machine Translation [J].

Branch pipe routing method based on a 3D network and improved genetic algorithm

Liu, Q. & Wang, C. 2012. Multi-terminal pipe routing by Steiner minimal tree and particle swarm optimization. Enterprise Information Systems 6(3): 315–327.

Sui, H. & Niu, W. 2016. Branch-pipe-routing approach for ships using improved genetic algorithm. Frontiers of Mechanical Engineering 2016: 1–8. Wu, J., Lin, Y., Ji, Z. & Fan, X. 2008. Optimal approach of ship branch pipe routing optimization based on co-evolutionary algorithm. Ship & Ocean Engineering 37(4): 135–138. (in Chinese)