IOWA STATE UNIVERSITY

Department of Civil, Construction, and Environmental Engineering

KEJIN WANG

Professor and Geotechnical/Materials Division Leader

492 Town Engineering Building
(515) 294-2152
kejinw@iastate.edu

EDUCATION

University of California, Ph.D. Civil Engineering, 1994
Chinese Academy of Sciences (Beijing), M.S. Civil Engineering, 1985
Hefei University of Technology (Hefei), B.S. Civil Engineering, 1982

HONORS AND AWARDS

- 2010 & 2006: Charles W. Schafer Faculty Award for Excellence in Teaching, Research and Service in CCEE, Iowa State University
- 2008: Journal of ASTM International Award for Outstanding Editorial Board Member
- 2008: Honorary Professor, School of Civil Engineering, Chongqing Jiaotong University of Technology, China
- 2006: Honorary Professor, School of Civil Engineering, Hefei University of Technology, China
- 2003: Honorary Professor, School of Civil Engineering, Lanzhou Jiaotong University, China

BOOKS EDITED OR CO-EDITED

- K. Wang, Editor, Proceedings of International Workshop on Sustainable Development and Concrete Technology, Beijing, China, May 20-22, 2004, ISBN 0-9652310-0, Iowa State University, Ames, IA, 359 pp. (2004).
- K. Wang and A. K. Schindler, Editor, Concrete Heat Development: Monitoring, Prediction, and Management, ACI SP-241, American Concrete Institute, Farmington Hills, MI (2007).

TEACHING

CE 382: Design of Concretes and Pavement Structures
CE 383: Design of Portland Cement Concrete
CE 587: Applied Concrete and Pavement
CE 580X: Advanced Design of Concretes

RESEARCH

Kejin Wang's research interests include chemistry and microstructure of concrete, portland cement and supplementary cementitious materials (uses of slag, fly ash, silica fume, etc.), concrete pavements (mix design, test methods, and surface characterization), special concrete (particularly in self-consolidating concrete and pervious concrete), concrete durability (alkali-silica reaction, freezethaw and steel corrosion), and concrete distress and repair.

Her recent research projects include:

Sequestering Lead in Paint by Utilizing Deconstructed Masonry Materials as Recycled Aggregate in Concrete (PI, sponsor: Strategic Environmental Research and Development Program (SEROP)).

Improving Variability and Precision of Air Void Analyzer (AVA) Test Results and Developing Rational Specification Limits (Phase 1) (Co-PI, sponsor: Federal Highway Administration (FHWA)).

Self-Compacting Concrete - Applications to Slip Form Paving (PI, sponsors: FHWA, State Department of Transportation (DOT), and Industry-Pooled Fund).

Develop a Simple and Rapid Test for Monitoring Heat Evolution of Concrete for Lab and Field (PI, sponsor: FHWA).

Pervious Concrete Mix Design for Pavement Wearing Course Application (Co-PI, sponsors: National Center for Concrete Pavement Technology (CP Tech Center) and RMC Research and Education Foundation).

Development of Performance Properties of Ternary Mixes (Co-PI, sponsors: FHWA/State DOTs/Industry).

Understanding rheology of cement-based materials through integrated experiments and computations at multiple scales (PI, Sponsor: National Science Foundation).

Dr. Wang's recent publications are on next page.

RECENT PUBLICATIONS

- F. Bektas, K. Wang,"Performance of Ground Clay Brick in ASR-Affected Concrete: Effects on Expansion, Mechanical Properties and ASR Gel Chemistry", Cement and Concrete Composites, (accepted: Sept 12, 2011)
- G. Lomboy, K. Wang, P. Taylor, and S. P. Shah, "Guidelines for Design, Testing, Production and Construction of Semi-Flowable Self-Consolidating Concrete for Slip-Form Paving," International Journal of Pavement Engineering, Taylor & Francis, DOI: 10.1080/10298436.2011.610797, Issue: Sept. 2011, p. 1-10
- G. Lomboy, S. Sundararajan, K. Wang, and S. Subramaniam, "A Method for Determining Adhesion Forces and Hamaker Constants of Type I Portland Cement for Rheology of Cement Based Mixtures", (accepted by Cement and Concrete Research, July 18, 2011)
- G. Lu, K. Wang "Numerical study on the projectile impact on concrete targets, Iinternational Journal of Computers and Concrete, (Paper ID: CAC04057C accepted on April 4, 2011)
- C. V. Hazaree, K. Wang, H. Ceylan, and Kasthurirangan Gopalakrishnan, "Capillary Transport in RCC: water/cement-strength-F-T resistance", MS MTENG-610R2 ASCE's Journal of Materials in Civil Engineering, (accepted, Jan. 26, 2011)
- Z. Ge, K. Wang, Z. Gao, "Prediction of Pavement Concrete Strength Development, Joint Sawing and Opening Time Using FEMLAB", ASCE Journal of Performance of Constructed Facilities (accepted June 6, 2010)
- G. Lu, K. Wang "Theoretical and experimental study on shear behavior of fresh mortar", Cement and Concrete Composites, v 33, n 2, p 319-327 (2011)
- J. Hu and K. Wang, "Effect of Aggregate Characteristics on Concrete Rheology," Construction and Building Materials vol. 25, n. 3. p.1196-1204 (2011)
- Q. Xu, M. Ruiz, J. Hu, K. Wang, and R. Rasmussen, "Modeling Hydration Properties and Temperature Development of Early-Age Concrete Pavement Using Calorimetry Tests", Thermochimica Acta, v 512, n 1-2, p 76-85, January 10, 2011
- J.T. Kevern, V.R Schaefer, and K. Wang, "Mix Design Development and Performance Evaluation of Pervious Concrete for Overlay Applications", ACI Materials Journal, v. 108, No. 4, p. 1-10 (2011)
- T. D. Rupnow, K. Wang, V. R. Schaefer, and P. Tikalsky, "A Simple Method for Characterizing and Predicting Temperature Behavior of Ternary Cementitious Systems" Construction & Building Materials , v. 25, n. 5, p. 2290–2297, (2011)
- C. V. Hazaree, H. Ceylan, and K. Wang, "Influences of mixture composition on properties and freeze-thaw resistance of RCC," Construction and Building Materials, vol. 25, p.313-319 (2011)
- J. Hu, K. Wang, J. A. Gaunt, "Sequestering Lead by Utilizing Lead-Based Paint (LBP) - Contaminated Masonry Materials as Recycled Aggregate in Portland Cement Concrete," Journal of Solid Waste Technology and Management, vol. 54, n 12, p 1453-1460 (2010)
- J. Hu, K. Wang, J. A. Gaunt, "Recycling Lead Based Paint Contaminated Deconstructed Masonry Materials as Aggregate for Portland Cement Concrete – A Cost Effective and Environmentally Friendly Approach," Resources, Conservation and Recycling Journal, v 54, n 12, p 1453-1460, October 2010
- G. Lu, K. Wang, T. J Rudolphi, "Modeling Rheological Behavior of Highly Flowable Mortar Using Concepts of Particle and Fluid Mechanics" Cement and Concrete Composites, Vol. 30, Issue 1, 1-12 (2008)
- F. Bektas, K. Wang, and H. Ceylan, "Effect of Portland Cement Fineness on ASTM C1260 Expansion", Journal of Testing and Evaluation, Vol. 36, p. 436-442, 2008
- F. Bektas,, K. Wang, H. Ceylan, Use of Ground Clay Brick as a Pozzolanic Material in Concrete, Journal of ASTM International, v5, n10, ID: JAI101681 (November 2008).
- Z. Ge and K. Wang, "Modified Heat of Hydration and Strength Models for Concrete Containing Fly Ash and Slag", International Journal of Computers and Concrete, Vol. 6, No. 1, p 19-40, 2009
- Z. Ge, K. Wang, P. J. Sandberg, J. M. Ruiz, Characterization of Cement-based Materials Using a Simple Isothermal Calorimeter" Journal of Advanced Concrete Technology, volume 7, No. 3, October 2009
- J.T. Kevern, K. Wang, and V.R Schaefer, "Test Methods for Characterizing Air Void Systems in Portland Cement Pervious Concrete", Journal of ASTM International Vol. 6, No. 9 (ID JAI102451), 2009
- G. Lomboy, K. Wang "Effects of Strength, Permeability, and Air Void Parameters on Freezing-Thawing Resistance of Concrete With and Without Air Entrainment" Journal of ASTM International, Vol. 6, No. 10, (ID JAI102454), 2009
- G. Lu and K. Wang "Investigation into Yield Behavior of Fresh Cement Paste: model and experiment", ACI Materials Journal, Vol. 107, No. 1, p 1-8, JanuaryFebruary, 2010
- T. Voigt, J. Mbele, K. Wang, S. P. Shah, "Using Fly Ash, Clay and Fibers for Simultaneous Improvement of Concrete Green Strength and Consolidatability for Slip-form Pavement" (accepted by ASCE Mat. J. September 2009)
- Kevern, J. T., Wang, K., and Schaefer, V. R. "The Effect of Coarse Aggregate on the Freeze-Thaw Durability of Pervious Concrete." ASCE Journal of Materials in Civil Engineering, 2009. (Accepted, July 09)