

## ROBERT L. PARSONS, Ph.D., P.E.

### ADDRESS

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### POSITION (University of Kansas)

2004 - Associate Professor, Civil, Environmental, and Architectural Engineering Department  
1998 - 2004 Assistant Professor, Civil, Environmental, and Architectural Engineering, Department

### EDUCATION

1995 - 1998 Ph.D., *Civil and Environmental Engineering*, Georgia Institute of Technology  
1991 - 1993 M.S., *Geological Engineering*, Missouri University of Science and Technology  
1987 - 1991 B.S., *Geological Engineering*, Missouri University of Science and Technology

### PROFESSIONAL REGISTRATION

State of Kansas (2000)

### TEACHING PORTFOLIO (1998 –)

CE 487 – Soil Mechanics  
CE 588 – Foundation Design  
CE 787 – Advanced Soil Mechanics  
CE 788 – Geotechnical Engineering Testing  
CE 791 – Waste Facility Siting and Design  
CE 885 – Advanced Foundation Engineering  
CE 887 – Earth Structures

### AWARDS AND HONORS

2009 Selected by the Kansas Department of Transportation to represent KU by presenting the results of our retaining wall research to the Kansas Secretary of Transportation and the KTRAN Research Program Council.  
2007 Miller Award - \$4,000 award from the KU School of Engineering for exceptional performance.  
2006 Miller Award - \$4,000 award from the KU School of Engineering for exceptional performance.  
2004 Most Popular Presentation, CEAE Professional Development Series (approximately 140 attendees)  
2003 Special Recognition Award- Asphalt Pavement Alliance  
2003 Bellows Scholar - \$4,000 award from the KU School of Engineering for outstanding achievement in research and service.  
2002 Miller Award - \$4,000 award from the KU School of Engineering for outstanding achievement in research and teaching.

## PROFESSIONAL ACTIVITIES

Chair of Student Competition Committee. ASCE GeoInstitute 2011 GeoFrontiers Conference. Dallas.  
Deep Foundations Institute 2009 Annual Meeting Planning Committee and Scholarship Chair  
Transportation Research Board Representative for the University of Kansas  
Transportation Research Board, Committee on Cementitious Stabilization (AFS80) (2001-2010)  
Transportation Research Board, Committee on Chemical and Mechanical Stabilization (AFS90)  
General Chairman - Kansas Asphalt Paving Conference (2002 – Current)  
GeoShanghai 2006 Technical Committee Member and Proceedings Editor  
ASCE Student Chapter Advisor (2005 - Current)

## MAJOR PUBLICATIONS

- 2009 Parsons, R.L., Johnson, R.M. Brown, D.A., Dapp, S. Brennan, J.J. “Characterization of Loess for Deep Foundations”. *Deep Foundations Institute Journal*, Deep Foundations Institute. Hawthorne, New Jersey. 3(2). 11-21.
- 2009 Pierson, M., Parsons, R. L., Han, J., Brennan. “Capacities and Deflections of Laterally Loaded Shafts behind an MSE Wall”. *Transportation Research Record, Journal of the Transportation Research Board. No 2116*. National Research Council. Washington D.C. 62-69.
- 2008 Yang, X., Han, J., Parsons, R.L., and Henthorne, R.W., “Resistance Factors for Drilled Shafts in Weak Rock Based on O-Cell Test Data”. *Soil Mechanics: Transportation Research Record No. 2045*. Journal of the Transportation Research Board. National Research Council. Washington D.C. 62-67. (Best Paper Award Winner for its Section)
- 2008 Han, J., Yang, X., Leshchinsky, D., and Parsons, R.L. “Behavior of Geocell-Reinforced Sand Under a Vertical Load”. *Soil Mechanics: Transportation Research Record No. 2045*. Journal of the Transportation Research Board. National Research Council. Washington D.C. 95-101.
- 2007 Han, J., Oztoprak, S., Parsons, R. L, and Huang, J. "Numerical analysis of foundation columns to support widening of embankments" *Computers and Geotechnics*. Elsevier. Thomas Telford. London. 34(6). 435-448.
- 2007 Parsons, R.L., O'Connor, M.S. and Cross, S.A. “Mixing Efficiency for Stabilized Subgrades for Low Volume Roads”. *Low Volume Roads: Transportation Research Record No. 1989*. Journal of the Transportation Research Board. National Research Council. Washington D.C. v2. 27-35.
- 2007 Han, J., Huang, J., and Parsons, R.L. “Influence of Bedrock Inclination on Elastic Settlements of Flexible Shallow Strip Foundations”. *Computers and Geotechnics*. Elsevier. 34(1). Thomas Telford. London. 53-56. Technical Communication.
- 2005 Parsons, R.L., and Kneebone, E. “Durability of Fly Ash Stabilized Subgrades”. *Ground Improvement*. Thomas Telford. London. 9(1). 33-38.
- 2003 Parsons, R.L, Milburn, J.P. “Engineering Performance of Stabilized Soils.” *Transportation Research Record: Journal of the Transportation Research Board*. No. 1837. National Research Council. Washington D.C. 20-29.

## MAJOR PUBLICATIONS (CONTINUED)

- 2002 Parsons, R.L. and Frost, J.D. "Evaluating Site Investigation Quality Using GIS and Geostatistics." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE. 128(6). 451-461.
- 2001 Deaton, S.L., Frost, J.D., Luna, R., and Parsons, R.L. "GIS-Based Evaluation of Geotechnical Borehole Log Quality." *Transportation Research Record: Journal of the Transportation Research Board*. No. 1755. National Research Council. Washington D.C. 15-25.
- 2000 Parsons, R.L., Frost, J.D. "Interactive Analysis of Spatial Subsurface Data Using a GIS-Based Tool." *Journal of Computing in Civil Engineering*, ASCE. 14(4). 215-222.
- 2000 Parsons, R.L., McDonnell, J.J. "Use of Electrical Conductivity to Determine the Location of Subsurface Coal Mining Activity." *Use of Geophysical Methods in Construction*. ASCE Geotechnical Special Publication 108. 170-186.

## MAJOR PUBLICATIONS – LEAD EDITOR

- 2006 *Foundation Analysis and Design, Innovative Methods*. ASCE Geotechnical Special Publication 153. Eds. Parsons, R.L., Zhang, L. Guo, W.D., Phoon, K.K., and Yang, M. 346 pp.

## PATENTS

- 2009 Parsons, R.L. and Schuler, M.L. *Breakaway Casing Connection*. Rights held by the KU Center for Technology Commercialization. Patent Pending.

## CONFERENCE PUBLICATIONS

- 2009 Parsons, R. L., Pierson, M., Han, J., and Brennan, J.J., and Brown, D.A. "Lateral load capacity of cast-in-place shafts behind an MSE wall." *Contemporary Topics in In Situ Testing, Analysis, and Reliability of Foundations*. ASCE Geotechnical Special Publication 186. 560-567.
- 2009 Pierson, M., Parsons, R. L., Han, J., Brennan, J.J., and Vulova, C. "Instrumentation of an MSE wall containing laterally loaded drilled shafts." *Contemporary Topics in Ground Modification, Problem Soils, and Geo-Support*. ASCE Geotechnical Special Publication 187. 352-361.
- 2009 Liang, F.-Y., Bennett, C.R., Parsons, R.L., and Han, J. "A literature review on behavior of scoured piles under bridges." *Contemporary Topics in In Situ Testing, Analysis, and Reliability of Foundations*. ASCE Geotechnical Special Publication 186. 482-489.
- 2009 Han, J., Yang, X.M., Parsons, R.L., and Henthorne, R. "Side resistance factor for serviceability-based design of drilled shafts in weak rock calibrated using O-cell test data." *Contemporary Topics in In Situ Testing, Analysis, and Reliability of Foundations*. ASCE Geotechnical Special Publication 186. 292-299.
- 2009 Pokharel, S.K., Han, J., Leshchinsky, D., Parsons, R.L., and Halahmi, I. "Behavior of geocell-reinforced granular bases under static and repeated loads." *Contemporary Topics in Ground Modification, Problem Soils, and Geo-Support*. ASCE Geotechnical Special Publication 187. 409-424.

## CONFERENCE PUBLICATIONS (CONTINUED)

- 2009 Parsons, R. L., Pierson, M., Han, J., Vulova, C. and Brennan, J.J. "Longer Term Monitoring of Strains In MSE Wall". Published in association with Geosynthetics 2009, Salt Lake City, UT, Feb 25-27, 2009. 300-308.
- 2009 Bennett, C.R., Lin, C. Parsons, R.L., and Han, J. "Evaluation of Behavior of a Laterally Loaded Bridge Pile Group under Scour Conditions. Structures 2009: Don't Mess with Structural Engineers. ASCE. 290-299.
- 2009 Han, J., Bhandari, A., and Parsons, R.L. (2009). "Influence of base course gradation on response of granular bases under cyclic loading: a micromechanical study." Proceedings of the 17th International Conference on Soil Mechanics and Geotechnical Engineering, Alexandria, Egypt. 5-9 October 2009, 893-896.
- 2009 Pokharel, S.K., Han, J., Parsons, R.L., Qian, Y., Leshchinsky, D., and Halahmi, I. (2009). "Experimental study on bearing capacity of geocell-reinforced bases." Proceedings of the 8th International Conference on the Bearing Capacity of Roads, Railways, and Airfields, Champaign, Illinois, June 29 to July 2.
- 2009 Bhandari, A., Han, J., and Parsons, R.L. "Discrete element method investigation of geogrid-aggregate interaction under a cyclic wheel load." Poster presentation and CD publication at the TRB 88th Annual Meeting, January 11 to 15, Washington, DC.
- 2009 Pokharel, S.K., Han, J., Leshchinsky, D., Parsons, R.L., and Halahmi, I. "Experimental evaluation of influence factors for single geocell-reinforced sand." Oral presentation and CD publication at the TRB 88th Annual Meeting, January 11 to 15, Washington, DC.
- 2008 Zhang, Y.Z., Han, J., and Parsons, R.L. "Experimental study of deformation effect on geosynthetic-soil interaction." Proceedings of the 4th International Symposium - Deformation Characteristics of Geomaterials, Burns, Mayne, and Santamarina (eds), 22-24 September, Atlanta, GA, 643-647.
- 2008 Han, J., Yang, X.M., Leshchinsky, D., Parsons, R.L., and Rosen, A. (2008). "Numerical Analysis for Mechanisms of a Geocell-Reinforced Base under a Vertical Load". *Proceedings of the 4<sup>th</sup> Asian Regional Conference on Geosynthetics*. Shanghai, China. 741-746.
- 2006 Parsons, R.L. Young, C.B., and Kneebone, E. "Storage and Analysis of Georeferenced Geotechnical and Pavements Data." *Geotechnical Engineering in the Information Technology Age*. Proceedings of GeoCongress 2006: Geotechnical Engineering in the Information Technology Age, February 26-March 1, 2006. p115 (link page on CD-ROM).
- 2006 Parsons, R.L., Young, C.B. and Kneebone, E. "Structuring a Comprehensive Georeferenced Subgrade Database". *Pavement Mechanics and Performance*. ASCE Geotechnical Special Publication 154. 173-179.
- 2005 Han, J., Parsons, R.L., Sheth, A.R., and Huang, J. (2005). Factors of safety against deep-seated failure of embankments over deep mixed columns. Deep Mixing '05, Proceedings of the Deep Mixing 2005 Conference, Sweden, May 23-25. 231-235.
- 2004 Parsons, R.L. Zhao, Y. Ramirez, G. and Schmitz, M.E. "Lateral Pressures on Bridge Abutments from CLSM." *Proceedings of the 83<sup>rd</sup> Annual Meeting, Transportation Research Board*. National Research Council. Washington D.C., January 11-16. CD-ROM.

## CONFERENCE PUBLICATIONS (CONTINUED)

- 2004 Parsons, R.L., and Kneebone, E. "Use of Cement Kiln Dust for the Stabilization of Soils." *Geotechnical Engineering For Transportation Projects*. ASCE Geotechnical Special Publication 126. 1124-1131.
- 2003 Parsons, R.L., and Milburn, J.P. "Monitoring Stabilized Soils Using the Soil Stiffness Gauge." *Proceedings of Soil Rock America 2003*, 12<sup>th</sup> Panamerican Conference on Soil Mechanics and Geotechnical Engineering, Cambridge, Massachusetts. pp 2709-2713.
- 2003 Parsons, R.L., Milburn, J.P. "Engineering Performance of Stabilized Soils." *Proceedings of the 82<sup>nd</sup> Annual Meeting, Transportation Research Board*. National Research Council. Washington D.C., January 12-16 (This paper was also published in the Transportation Research Record). CD-ROM.
- 2002 Cross, S.A., Parsons, R.L. "Evaluation of Expenditures on Kansas Rural Interstate Pavements." *Proceedings of the 81<sup>st</sup> Annual Meeting, Transportation Research Board*. National Research Council. Washington D.C., January 7-11. CD-ROM.
- 2001 Parsons, R.L., Johnson, C.J., and Cross, S.A. "Evaluation of Field Mixing and Construction Procedures for Lime Modified Subgrades." *Proceedings of the 80<sup>th</sup> Annual Meeting, Transportation Research Board*. National Research Council. Washington D.C., January 7-11. CD-ROM.
- 1998 Parsons, R.L., Frost, J.D., Chameau, J-L.A., Tsai, Y.C. "GIS-ASSESS: A Spatial Analysis Tool for Site Investigation Planning and Evaluation." *Proceedings of ISC '98, International Conference on Site Characterization*. pp 251-256. Atlanta, Georgia.

## ADDITIONAL PUBLICATIONS

- 2007 Parsons, R.L., Brown, D.A., Brennan, J.J., Johnson, R.M., and Schuler, L. "Designing Drilled Shafts in Loess". *Foundation Drilling*. ADSC, The International Association of Foundation Drilling. 28(6). 27-30.
- 2006 Johnson, R.M., Parsons, R.L., Dapp, S., and Brown, D.A. *Soil Characterization and P-Y Curve Development for Loess*. Kansas Department of Transportation. Final Report.
- 2006 O'Connor M. and Parsons, R.L. *Lime Application Methods*. Kansas Department of Transportation. Kansas Department of Transportation. Contract KU-02-2. Final Report. USDOT TRIS Accession No. 01027342. 92p.
- 2005 *Development of a Database of Historical Subgrade Information*. Kansas Department of Transportation. Final Report and User Guide. Contract KU-04-02. 21p.
- 2003 Milburn, J.P., Parsons, R.L. *Performance of Soil Stabilization Agents*. Kansas Department of Transportation. Contract KU-01-08. 117p. USDOT TRIS ID: 00974977.
- 2003 Schmitz, M., Parsons, R.L., Ramirez, G., Zhao, Y. (2003). *Use of Controlled Low-Strength Material as Abutment Backfill*. Kansas Department of Transportation. Contract KU-02-06. 76p. USDOT TRIS ID: 00978483.

## ADDITIONAL PUBLICATIONS (CONTINUED)

- 2003 Parsons, R.L. and Frost, J.D. "Evaluating Site Investigation Quality Using GIS And Geostatistics" (Closure). *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE. 129(9). 867-868.
- 2002 Parsons, R.L. *Subgrade Improvement through Fly Ash Stabilization*. Kansas University Transportation Center, Sponsored by the City of Overland Park, Kansas. 16p.
- 2002 Parsons, R.L., Foster, D.H., and Cross, S.A. *Compaction and Settlement of Existing Embankments*. Kansas Department of Transportation. US DOT Publication ID: 00924258. 145p.
- 2001 Cross, S.A, and Parsons, R.L. *Evaluation of Expenditures for Kansas Rural Interstate Pavements- Final Report*. Kansas University Transportation Center. Sponsored by the Kansas Asphalt Pavement Association. 81p.
- 2001 Parsons, R.L. *Recipe for a Stable Subgrade*. KUTC Newsletter. University of Kansas Transportation Center. Winter, 2001.
- 2001 Parsons, R.L., Johnson, C.P., and Cross, S.A. *Evaluation of Soil Modification Mixing Procedures*. Kansas Department of Transportation. US DOT Publication ID: 00812526. 83p.
- 1999 Parsons, R.L. and Cross, S.A. *Performance of Fly Ash as a Modification/Stabilization Agent in Clay Soils*. Research Report for Fly Ash Management. 8p.
- 1996 Saunders, M.F., Jones, A.J., Parsons, R.L., and Tsai, Y.C.; *Policy Analysis for the Design and Use of Intelligent Environmental Site Assessment Programs*. Report produced for the U.S. Army under contract DACA88-94-D-0025. 42p.

## TECHNICAL PRESENTATIONS

- 2009 *Capacity of Laterally Loaded Shafts Constructed Behind the Face of a Mechanically Stabilized Earth Block Wall*. Presentation to the Kansas Secretary of Transportation and the Research Program Council as the KU representative. Topeka, Kansas. April 1, 2009. Invited Presentation.
- 2009 *Lateral Load Capacity of Cast-in-Place Shafts behind an MSE Wall*. International Foundation Congress & Equipment Expo 09. ASCE. Orlando, Florida, March 15-19.
- 2009 *Longer Term Monitoring of Strains in MSE Wall*. Geosynthetics 2009. Salt Lake City, Utah. February 25-27, 2009.
- 2009 *Capacities and Deflections of Laterally Loaded Shafts behind an MSE Wall*. Transportation Research Board Annual Meeting. Washington, D.C. January 11-15.
- 2008 *Capacities and Deflections of Laterally Loaded Shafts behind an MSE Wall*. KDOT Construction Conference. September 30, Salina Kansas. Invited.
- 2007 *P-y design curves for laterally loaded drilled shafts in loess*. Southwest Geotechnical Conference. Kansas City. April 25, 2007.
- 2007 *Mixing Efficiency for Stabilized Subgrades for Low Volume Roads*. Low Volume Roads Conference, sponsored by the Transportation Research Board. Austin, Texas. June 25, 2007.

- 2007 *P-Y curves for Drilled Shafts in Loess*. Presentation to AFS30 Committee Meeting, Transportation Research Board Annual Meeting, Washington, D.C. January 21-24, 2007.
- 2006 *Structuring a Comprehensive Georeferenced Subgrade Database*. GeoShanghai International Conference, Shanghai, China. June 6-8, 2006.
- 2006 *Storage and Analysis of Georeferenced Geotechnical and Pavements Data*. GeoCongress 2006: Geotechnical Engineering in the Information Technology Age, February 26-March 1, 2006.
- 2004 *Use of Cement Kiln Dust for the Stabilization of Soils*. GeoTrans 2004 July 27-31, 2004. Los Angeles, California.
- 2004 *Design of Segmental Retaining Walls*. KU CEAE Professional Development Series. Kansas City, Missouri.
- 2003 *Monitoring Stabilized Soils Using the Soil Stiffness Gauge*. Soil Rock America 2003, 12<sup>th</sup> Pan-American Conference on Soil Mechanics and Geotechnical Engineering. Cambridge, Massachusetts.
- 2003 *Performance of Soil Stabilization Agents*. 85<sup>th</sup> Annual Kansas Transportation Engineering Conference. Invited Speaker.
- 2003 *Field Performance of Stabilized Subgrades*. Soil and Base Stabilization with Fly Ash Conference. Overland Park, Kansas. Invited Speaker.
- 2003 *Engineering Behavior of Stabilized Soils*. 82<sup>nd</sup> Annual Meeting, Transportation Research Board. National Research Council. Washington D.C., January 12-16.
- 2002 *Stabilization of Subgrade Soils*. Professional Development Series. KU CEAE Professional Development Series, Overland Park, Kansas. Invited Speaker.
- 2002 *Evaluation of Expenditures for Kansas Rural Interstate Pavements*. Asphalt Recycling and Reclaiming Association, National Meeting. Tampa, Florida. Invited Speaker.
- 2002 *Evaluation of Expenditures on Kansas Rural Interstate Pavements*. 81<sup>st</sup> Annual Meeting, Transportation Research Board. National Research Council. Washington D.C., January 7-11.
- 2001 *Evaluation of Expenditures for Kansas Rural Interstate Pavements*. Asphalt Pavement Alliance, National Meeting. Austin, Texas. Invited Speaker.
- 2001 *Subgrade Modifiers*. 21<sup>st</sup> Annual Portland Cement Concrete Paving Conference. American Concrete Pavement Association, Missouri/Kansas Chapter. Kansas City, Missouri. March 6-8. Invited Speaker.
- 2001 *Evaluation of Field Mixing and Construction Procedures for Lime Modified Subgrades*. 80<sup>th</sup> Annual Meeting, Transportation Research Board. National Research Council. Washington D.C., January 7-11.
- 2000 *Use of Electrical Conductivity to Determine the Location of Subsurface Coal Mining Activity*. GeoDenver 2000 Conference, ASCE. Denver, Colorado. August 3-8, 2000.

- 2000 *Evaluation of Lime-Soil Mixing Procedures.* Universidad Autonoma de Guadalajara, Guadalajara, Mexico. Invited Speaker.
- 2000 *Evaluation of Mixing Procedures for Lime Stabilized Subgrades.* 79<sup>th</sup> Annual Meeting, Transportation Research Board. A2J01 Annual Committee Meeting. National Research Council. Washington D.C.
- 1999 *Use of GIS for Geotechnical Applications.* KU Civil and Environmental Engineering Professional Development Series, Overland Park, Kansas. Invited Speaker.
- 1998 *Development and Implementation of a Spatial Analysis Tool for Site Investigation Evaluation and Optimization.* Joint meeting of the ASCE Geotechnical Section and AEG Section of Kansas City, Missouri. Invited Speaker.
- 1998 *Geotechnical Engineering at the University of Kansas.* United States Universities Council on Geotechnical Engineering Research Workshop. Sponsored by NSF. Newport, Rhode Island.
- 1997 *Optimizing Site Characterization Activities.* Computer Aided Site Representation Session. First ASCE Geo-Institute Conference (GeoLogan). Logan, Utah.
- 1994 *Landfill Construction Above a Room and Pillar Mine.* Association of Engineering Geologists, National Meeting. Williamsburg, Virginia.

#### **ADDITIONAL PROFESSIONAL EXPERIENCE**

- 1993 - 1995 Staff Engineer, American Disposal Services  
Responsibilities for this position included the supervision of engineering and environmental activities and project management for landfills and hauling companies in Missouri, Kansas, and Oklahoma.