

General Biographical Information

STEVEN L. KRAMER

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Academic background

University of California, Berkeley, Civil Engineering, B.S., 1977
 University of California, Berkeley, Geotechnical Engineering, M. Eng., 1979
 University of California, Berkeley, Geotechnical Engineering, Ph.D., 1985

Professional history

Professor, University of Washington, Department of Civil Engineering, 1997-present.
 Faculty, Centre for Post-Graduate Training and Research in Earthquake Engineering and Engineering Seismology (ROSE School) University of Pavia, Italy, 2007-present.
 Associate Professor, University of Washington, Department of Civil Engineering, 1990-1997.
 Assistant Professor, University of Washington, Department of Civil Engineering, 1984-1990.
 Research Assistant, Univ. of California, Berkeley. Static liquefaction of sands, 1982-1984.
 Research Assistant, Univ. of California, Berkeley. Cyclic triaxial testing of sea-floor sediments, 1978-1979.
 Teaching Assistant, Univ. of California, Berkeley, 1978.
 Research Assistant, Univ. of California, Berkeley. Numerical modeling of ground surface subsidence, 1978.
 Research Assistant, Univ. of California, Berkeley. Cyclic triaxial testing of dam embankment soils, 1977-1978.
 Project Engineer, Cooper & Clark, Redwood City, California, 1979-1982.
 Field Engineer, Harding-Lawson Associates, Novato, California, 1979.
 Engineering Aide, Sargent & Lundy Engineers, Chicago, Illinois, 1977.

Refereed Journal Publications

Kramer, S.L. and Seed, H.B. (1988) "Initiation of Soil Liquefaction Under Static Loading Conditions", *Journal of Geotechnical Engineering*, ASCE, Vol. 114, No. 4, pp.412-430.

Kramer, S.L. and Heavey, Edward J. (1988) "Lateral Load Analysis of Nonlinear Piles", *Journal of Geotechnical Engineering*, ASCE, Vol. 114, No. 9, pp. 1045-1049.

Kramer, S.L. (1988) "Liquefaction Flow Slides in Coastal Soil Deposits", *Engineering Geology*, Vol. 26, No. 4, pp. 17-31.

Kramer, S.L. and Heavey, Edward J. (1989) "Analysis of Laterally Loaded Piles with Nonlinear Bending Behavior", *Transportation Research Record 1169*, Transportation Research Board, National Research Council, pp. 70-74.

Kramer, S.L. and Sivaneswaran, N. (1989) "A Non-Destructive, Specimen-Specific Method for Measurement of Membrane Penetration", *Geotechnical Testing Journal*, ASTM, Vol. 12, No. 1, pp. 50-59.

- Kramer, S.L. (1989) "Uncertainty in Steady State Liquefaction Evaluation Procedures", *Journal of Geotechnical Engineering*, ASCE, Vol. 115, No. 10, pp. 1402-1419.
- Kramer, S.L. and Sivaneswaran, N. (1989) "A Stress Path Dependent Correction for Membrane Penetration", *Journal of Geotechnical Engineering*, ASCE, Vol. 115, No. 12, pp. 1787-1804.
- Kramer, S.L., Sivaneswaran, N. and Davis, R.O. (1990) "Analysis of Membrane Penetration in the Triaxial Test", *Journal of Engineering Mechanics*, ASCE, Vol. 116, No. 4, pp. 773-789.
- Kramer, S.L., Satari, R., and Kilian, A.P. (1991) "Evaluation of In-Situ Strength and Stiffness of a Peat Deposit from Laterally Loaded Pile Test Results", *Transportation Research Record 1278*, Transportation Research Board, Washington, D.C., pp. 103-109.
- Sivaneswaran, N., Kramer, S.L., and Mahoney, J.P. (1992) "Advanced Backcalculation Using a Nonlinear Least Squares Optimization Technique", *Transportation Research Record 1293*, Transportation Research Board, Washington, D.C., pp. 93-102.
- Crouse, C.B., Kramer, S.L., Mitchell, R., and Hushmand, B., (1993). "Dynamic Tests of a Pipe Pile in Saturated Peat", *Journal of Geotechnical Engineering*, ASCE, Vol. 119, No. 10, pp. 1550-1567.
- Kramer, S.L., Von Laun, F.-Y., and Sivaneswaran, N. (1992). "Strain-Controlled, Variable Frequency Cyclic Loading System for Soft Soils", *Geotechnical Testing Journal*, ASTM, Vol. 15, No. 3, pp. 264-270.
- Kramer, S.L. (1992). "Use of Air Bag System for Instrumentation of Lateral Load Tests on Existing Pipe Piles", *Geotechnical Testing Journal*, ASTM, Vol. 15, No. 4, pp. 399-403.
- Kramer, S.L., Craig, M.S., and Punyamurthula, S. (1993). "Estimation of Earthquake-Induced Pile Bending in a Thick Peat Deposit", *Transportation Research Record 1411*, Transportation Research Board, pp. 18-27.
- Kramer, S.L. and Smith, M.W. (1996). "A Modified Newmark Model for Seismic Displacements of Landfills and Other Compliant Slopes", *Journal of Geotechnical Engineering*, ASCE, Vol. 123, No. 7, pp. 635-644.
- Kramer, S.L. (2000). "Dynamic Response of Mercer Slough Peat", *Journal of Geotechnical Engineering*, ASCE, Vol. 126, No. 6, pp. 504-510.
- Kim, M-Y, O'Neill, M.W., and Kramer, S.L. (2000). "Performance of Drilled Shafts with Isolation Tubes in an Expansive Soil Environment," *Geotechnical Testing Journal*, ASTM, Vol. 23, No. 3, pp. 345-357.
- Jones, A.L., Arduino, P., Kramer, S.L., Eberhard, M.O. (2002). "Uncertainty analysis for a seismic warning system," *Transportation Research Record No. 3774*, Soils, Geology, and Foundations, Transportation Research Board, National Research Council, Washington, D.C.
- Kramer, S.L. and Lindwall, N.W. (2002). "Dimensionality and Directionality Effects of Newmark Stability Analysis," *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 130, No. 3, pp. 303-315.
- Paulsen, S.B. and Kramer, S.L. (2004). "A predictive model for seismic displacements of reinforced slopes," *Geosynthetics International*, Vol. 11, No. 6, pp. 407-428.
- Kramer, S.L. and Paulsen, S.B. (2004). "Seismic performance evaluation of reinforced slopes," *Geosynthetics International*, Vol. 11, No. 6, pp. 429-438.
- Kramer, S.L. and Mitchell, R.A. (2006). "An Efficient and Sufficient Scalar Intensity Measure for Soil Liquefaction," *Earthquake Spectra*, Vol. 22, No. 2, pp. 1-26.
- Kramer, S.L. and Mayfield, R.T. (2007). "The return period of liquefaction," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 133, No. 7, pp. 1-12.
- Ranf, R.T., Shin, H.S., Eberhard, M., Arduino, P., and Kramer, S.L. (2008). "Fixed-Base Approximations for PBEE of Bridges on Drilled Shafts", *Earthquake Spectra*, in review.
- Kramer, S.L. and Baska, D.A. (2008). "Estimation of permanent displacement due to lateral spreading," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, accepted pending revisions.

Mayfield, R.T., Kramer, S.L., and Huang, Y.-M. (2009). "Simplified approximation procedure for performance-based evaluation of liquefaction potential," *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, in press.

Fully-Refereed Conference Proceedings

Kramer, S.L., Thompson, B., Critchfield, J., and Winter, D. (1993). "Field Observations of Insitu Tieback Geometry", *Proceedings*, International Conference on Soil Mechanics and Foundation Engineering, New Delhi.

Baska, D. A., Kramer, S.L., and Silva, W. J. (1998), "Ground Motions in Washington State from Subduction Zone Earthquakes, *Proceedings* Geo-Institute Specialty Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Seattle, Vol. 1, pp. 54-65.

Stark, T. D., Olson, S. M., Kramer, S. L., and Youd, T. L. (1998) "Shear Strength of Liquefied Soil", *Proceedings* Geo-Institute Specialty Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Seattle, Vol. 1, pp. 313-324.

Field, E.H. and Kramer, S. L., Elgamal, A.-W., Bray, J.D., Matasovic, N., Johnson, P.A., Cramer, C., Roblee, C., Wald, D.J., Bonilla, L.F., Dimitriu, P.P., and Anderson, J.G. (1998), "Nonlinear Response – Where We're At", *Seismological Research Letters*, Vol. 69, No. 3, pp. 230-234.

Holtz, R.D., Kramer, S.L., Hsieh, C.W., Huang, A.B., and Lee, W.F. (2001). "Failure analysis of an 80m high geogrid reinforced wall in Taiwan, *Proceedings*, International Conference on Soil Mechanics and Geotechnical Engineering, Istanbul, Turkey.

Kramer, S.L. and Paulsen, S.B. (2004). "The Prediction of Reinforced Slope Performance During Earthquakes," *Proceedings*, 11th International Conference on Soil Dynamics and Earthquake Engineering, Berkeley, California, pp. 275-282.

Kramer, S.L. and Mayfield, R.T. (2005). "De-aggregation of liquefaction hazard," *Proceedings*, International Society of Earthquake Engineering Conference, Kobe, Japan, 12 pp.

Kramer, S.L. and Mayfield, R.T. (2005). "Performance-based liquefaction hazard evaluation," *Proceedings*, GeoFrontiers 2005, ASCE, Austin, Texas, 18 pp.

Shin, H.-S., Arduino, P., Kramer, S.L., Ilankatharan, L., and Kutter, B.L. (2005). "Numerical analyses of seismic pile-soil interaction problem using OpenSees," *Proceedings*, Joint ASME/ASCE/SES Conference on Mechanics and Materials, Baton Rouge, Louisiana.

Ilankatharan, M., Kutter, B. L., Shin, H., Arduino, P., Kramer, S. L., Johnson, N., and Sasaki, T. (2006). "Comparison of Centrifuge and 1g Shake Table Models of a Pile Supported Bridge Structure," *Proceedings*, International Conference on Physical Modeling in Geotechnics, Hong Kong.

Kramer, S.L., Mayfield, R.T., and Anderson, D.G. (2006). "Performance-based liquefaction hazard evaluation: Implications for codes and standards," *Proceedings*, Eighth U.S. National Conference on Earthquake Engineering, San Francisco, Paper No. 888.

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- Kramer, S.L. and Upsall, S.P. (2006). "Instrumental Intensity Scales for Geohazards," Proceedings, Geohazards – Technical, Economical, and Social Risk Evaluation, Lillehammer, Norway, June.
- Mayfield, R.T. and Kramer, S.L. (2006). "Performance-Based Liquefaction Hazard Evaluation," Proceedings, KU-UW International Symposium #1 on Design Strategy towards Safety & Symbiosis of Urban Space, Kobe, Japan, September.
- Kramer, S.L. and Upsall, S.B. (2006). "Geohazard Intensity Scales," Proceedings, KU-UW International Symposium #1 on Design Strategy towards Safety & Symbiosis of Urban Space, Kobe, Japan, September.
- Kramer, S.L., Mayfield, R.T., and Huang, Y.-M. (2006). "Performance-Based Liquefaction Potential: A Step Toward More Uniform Design Requirements," Proceedings, U.S.-Japan Workshop on Seismic Design of Bridges, Bellevue, WA.
- Kramer, S.L., Franke, K.W., Huang, Y.-M., and Baska, D.A. (2007). "Performance-Based Evaluation of Lateral Spreading Displacement," Proceedings, 4th International Conference on Earthquake Geotechnical Engineering, Paper No. 1208, Thessaloniki, Greece, 12 pp.
- Shin, H.S., Arduino, P., and Kramer, S.L. (2007). "Performance-Based Evaluation of Bridges on Liquefiable Soils," Proceedings, 2007 Structures Congress, Structural Engineering Institute, ASCE, 16 pp.
- Kramer, S.L. (2008). "Performance-Based Earthquake Engineering: Opportunities and Implications for Geotechnical Engineering Practice," Keynote Paper, Fourth Conference on Geotechnical Earthquake Engineering and Soil Dynamics, ASCE, Sacramento, 32 pp.
- Shin, H.S., Arduino, P., Kramer, S.L., and Mackie, K. (2008). "Seismic Response of a Typical Highway Bridge in Liquefiable Soil, Fourth Conference on Geotechnical Earthquake Engineering and Soil Dynamics, ASCE, Sacramento, 11 pp.
- Kramer, S.L. (2008). "Turkey Flat Ground Motion Prediction – Initial Review," *Proceedings*, Strong Motion Instrumentation Program Seminar, California Geologic Survey, Los Angeles, CA, 130pp.
- Kramer, S.L. (2009). "Role of soil investigation in performance-based design," *Proceedings*, International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Invited Paper, 8 pp.
- Kramer, S.L., Arduino, P., and Shin, H. (2009). "Development of performance criteria for foundations and earth structures," Proceedings, International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Invited Theme Lecture Paper, 14 pp.

Abstract and Non-Refereed Conference Proceedings and Other Non-Journal Articles

- Kramer, S.L. and Yang, Tse-Ming (1986) "Experimental Investigation of the Effects of Earthquake Shaking on Passive Pressures Against a Non-Yielding Wall", *Proceedings*, 22nd Symposium on Engineering Geology and Soils Engineering, Boise, Idaho, pp. 304-322.
- Kramer, S.L. (1987) "Evaluation of Liquefaction Flow Slide Stability", *Proceedings*, 23rd Symposium on Engineering Geology and Soils Engineering, Logan, Utah.
- Kramer, S.L. and Ho, Carlton L. (1989) "Recent Developments in Analysis of Liquefaction-Induced Landslides", *GSA Abstracts with Programs*, Vol. 21, No. 5, Abs. No. 28009, Spokane, Washington.
- Schilling, C.H., Kramer, S.L., and Aksay, I.A. (1991) "Reversible Softening-Hardening Behavior During the Shape Forming of Advanced Ceramics", *Proceedings*, American Ceramics Society, October, 1991.
- Kramer, S.L. and Robertson, P.K. (1993). "Case Histories in Geotechnical Earthquake Engineering", *Proceedings*, 3rd International Conference on Case Histories in Geotechnical Engineering, Vol. 3, St. Louis, Missouri.

De la Colina, J., Ryter, S., Eberhard, M.O., Wood, S.L., Kramer, S.L., and Sivaneswaran, N. (1994). "Seismic vulnerability of the Alaskan Way Viaduct", *Proceedings*, Second U.S.-Japan Workshop on Seismic Retrofit of Bridges.

Guide to Thesis Preparation - a nine-page guide to organization, preparation, and completion of a thesis for geotechnical engineering graduate advisees.

Punyamurthula, S. and Kramer, S.L. (1998). "Automated Processing of Resonant Column Test Data Using MATLAB," Applications of Mathematics Software in Geotechnical Engineering Practice, ASCE Geotechnical Institute Conference, Logan, Utah, pp. 28-34.

Kramer, S. L. (1998), "The Development of Geotechnical Earthquake Engineering", *Proceedings, Golden Anniversary Volume* (invited paper), Earthquake Engineering Research Institute Annual Meeting, San Francisco, pp. 10-20.

Kramer, S. L. and Yegian, M. (1998), "From Soil Dynamics to Geotechnical Earthquake Engineering", *Geotechnical News*, Vol. 16, No. 2, pp. 16-19.

Field, E.H. and Kramer, S.L. (1998). "Nonlinear Site Response: Seismology and Engineering Perspectives," *Geotechnical News*, Vol. 16, No. 2, pp. 22-24.

Field, E. H., S. Kramer, A.-W. Elgamal, J.D. Bray, N. Matasovic, P.A. Johnson, C. Cramer, C. Roblee, D.J. Wald, L.F. Bonilla, P.P. Dimitriu, and J.G. Anderson, (1998). "Nonlinear Site Response: Where We're At", *Proceedings of the VIIth International Symposium on the Observations of the Continental Crust through Drilling*, Vol. 69, No. 3., pp. 230-234.

Kramer, S.L., Wang, C.H., and Byers, M.B. (1999). "Experimental Measurement of the Residual Strength of Particulate Materials," *Physics and Mechanics of Soil Liquefaction*, Lade, P.V. and Yamamuro, J.A., eds., Balkema Publishers, Rotterdam, pp. 249-259.

Kramer, S.L. and Arduino, P. (1999). "Constitutive Modeling of Cyclic Mobility and Implications for Site Response," *Proceedings, Second International Conference on Earthquake Geotechnical Engineering* (invited paper), Lisbon, Portugal, Vol. 3, pp. 1029-1034.

Kramer, S.L. and Jones, A.J. (2000). "Implications of Great Cascadia Subduction Zone Earthquakes for Liquefaction and Landslides," *Proceedings, Penrose Conference* (invited paper), Seaside, Oregon, June.

Troost, K.G., Haugerud, R.A., Walsh, T.J., Harp, E.L., Booth, D.B., Steele, W.P., Wegmann, K.W., Pratt, T.L., Sherrod, B.S., and Kramer, S.L. (2001). "Ground failures produced by the Nisqually earthquake, *Proceedings*, Annual Meeting of Seismological Society of America, in press.

Haugerud, R. A., Troost, K. G., Harp, E. L., Wegmann, K. W., Sherrod, B. S., Pratt, T. L., Powers, P. S., and Kramer, S. L. (2001). "Regional Map View of Ground Deformation Associated with the Nisqually Earthquake, 28 February 2001" *Proceedings*, Annual Meeting of Seismological Society of America, in press.

Kramer, S.L. and Baska, D. (2001). "Use of Numerical Simulation in the Development of Empirical Predictions of Liquefaction Behavior," *Proceedings*, International Workshop on Modeling in Geotechnical Earthquake Engineering, Cleveland.

Kramer, S.L. and Paulsen, S.B. (2001). "Seismic Performance of MSE Structures in Washington State," *Proceedings*, International Geosynthetics Engineering Forum, Taipei, Taiwan, pp. 145-173.

Kramer, S.L., Bennetts, B.A., and Wang, C.H. (2002). "Sand Behavior at Large Strain in Ring Simple Shear," *Proceedings*, U.S.-Japan Workshop on Seismic Disaster Mitigation in Urban Areas by Geotechnical Engineering, Anchorage, Alaska.

Kramer, S.L., Mayfield, R.T., and Mitchell, R.A. (2004). "Ground Motions and Liquefaction – The Loading Part

of the Equation," *Proceedings*, U.S.-Taiwan Workshop on Soil Liquefaction, National Chiao-Tung University, Hsinchu, Taiwan. 21 pp.

Kramer, S.L. and Paulsen, S.B. (2004). "Practical Use of Geotechnical Site Response Models," *Proceedings*, International Workshop on Uncertainties in Nonlinear Soil Properties and their Impact on Modeling Dynamic Soil Response, University of California, Berkeley, 10 pp.

Wood, S.L., Anagnos, T., Arduino, P., Eberhard, M.O., Fenves, G.L., Finholt, T.A., Futrelle, J.M., Grant, S.K., Jeremic, B., Kramer, S.L., Kutter, B.L., Matamoros, A.B., McMullin, K.M., Ramirez, J.A., Rathje, E.M., Saiidi, M., Sanders, D.H., Stokoe, K.H., Wilson, D.W. (2004). "Using NEES to Investigate Soil-Foundation-Structure Interaction," *Proceedings*, 13th World Conference on Earthquake Engineering, Vancouver, British Columbia, Paper No. 2344, 6 pp.

Arduino, P., Kramer, S.L., Li, P., and Horne, J.C. (2005). "Stiffness of Piles in Liquefiable Soils," *Proceedings*, International Workshop on Simulation and Seismic Performance of Pile Foundations in Liquefied and Laterally Spreading Ground, Davis, CA, ASCE Geotechnical Special Publication No. 145, pp. 134-148.

Books

Kramer, S.L. (1996). *Geotechnical Earthquake Engineering*, Prentice Hall, Inc., Upper Saddle River, New Jersey, 653 pp.

Kramer, S.L. and Scawthorn, C.R. (1999): "Geotechnical Earthquake Considerations", Chapter 33 in *Earthquake Engineering Handbook*, W.F. Chen and L. Duan, eds., CRC Press.

Kramer, S.L. and Stewart, J.S. (2004). "Geotechnical Aspects of Seismic Hazards", Chapter 4 in *Earthquake Engineering: From Engineering Seismology to Performance-Based Engineering*, Y. Bozorgnia and V. Bertero, eds., CRC Press, Boca Raton, 85 pp.

Editing and Other Scholarly Papers

Kramer, S. and Siddharthan, R., eds. (1995). *Earthquake-Induced Movements and Seismic Remediation of Existing Foundations and Abutments*, ASCE National Convention, San Diego, California, 139 pp.

Boulanger, R.W., Dewoolker, M., Gucunski, N., Juang, C.-H., Kalinski, M.E., Kramer, S.L., Manzari, M., and Pauschke, J. (2005). *Earthquake Engineering and Soil Dynamics*, Geotechnical Special Publication 133, ASCE.

Project reports (reports to sponsors)

Kramer, S.L. (1985) "Liquefaction of Sands Due to Non-Seismic Liquefaction", Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, University of California, Berkeley, January.

Kramer, S.L. (1987) "Development of p-y Curves for Analysis of Laterally Loaded Piles in Western Washington", Final Report, Washington State Department of Transportation, Olympia, Washington, 58 pp.

Heavey, Edward J. and Kramer, S.L. (1987) "Analysis of Laterally Loaded Piles with Nonlinear Bending Behavior", Soil Engineering Report No. 28, University of Washington, October, 95 pp.

Banerjee, S., Kramer, S.L., and Adjali, Salim (1988) "Physical and Numerical Model Studies of the Dynamics of a Cantilever Wall", Soil Engineering Report No. 29, University of Washington, January, 213 pp.

- Kramer, S.L. and Sivaneswaran, N. (1988) "Measurement and Analysis of Membrane Penetration", Soil Engineering Report No. 30, University of Washington, May, 110 pp.
- Marimba, Percy and Kramer, S.L. (1989) "Frictional Characteristics of Geomembranes", Soil Engineering Report No. 31, University of Washington, June, 128 pp.
- Jonsdottir, Ingunn E. and S.L. Kramer (1989) "Investigation of Stress Redistribution in the Vicinity of Earth Pressure Cells", Soil Engineering Report No. 32, University of Washington, July, 119 pp.
- Kramer, S.L. (1991) "Behavior of Piles in Full-Scale, Field Lateral Loading Tests", Final Report, Washington State Department of Transportation, Olympia, Washington, October, 79 pp.
- Kramer, S.L. and Sajer, P. (1992). "Bridge Approach Slab Effectiveness", Final Report, Washington State Department of Transportation, Olympia, Washington, March, 202 pp.
- Kramer, S.L. and Holtz, R.D. (1992). "Soil Improvement and Foundation Remediation with Emphasis on Seismic Hazards", Report of National Science Foundation Workshop, University of Washington, 104 pp.
- Kramer, S.L. (1992). "Evaluation of Insitu Tieback Characteristics", Draft Final Report, Washington State Department of Transportation, Olympia, Washington.
- Brown, C.B., Eberhard, M.O., Kramer, S.L., Roeder, C.W., and Stanton, J.F. (1992). "Preliminary Investigation of the Seismic Vulnerability of the Alaskan Way Viaduct", Washington State Department of Transportation, 84 pp.
- Kramer, S.L. (1993). "Seismic Response - Foundations in Soft Soils", Final Report, Washington State Department of Transportation, Olympia, Washington.
- Kramer, S.L., Sivaneswaran, N., and Tucker, K. (1995). "Seismic Vulnerability of the Alaskan Way Viaduct: Geotechnical Engineering Aspects", Washington State Department of Transportation, 174 pp.
- Kramer, S.L. (1996). "Dynamic Response of Peats", Washington State Department of Transportation, in press.
- Kramer, S.L. and Horne, J.C. (1996), "Effects of Liquefaction on Pile Foundations," Washington State Department of Transportation, in press.
- Kramer, S. L., Silva, W. J., and Baska, D. A., (1998) "Ground Motions Due to Large Magnitude Subduction Zone Earthquakes", *Final Report*, Washington State Transportation Center, Seattle.
- Stark, T.D., Kramer, S. L., and Youd, T. L. (1998) "Shear Strength of Liquefied Soil, National Science Foundation Workshop Report, University of Illinois, Urbana, 98 pp.
- Kramer, S.L. and Elgamal, A.-W. (2001). "Modeling Soil Liquefaction Hazards for Performance-Based Earthquake Engineering," State-of-the-Art Report, Pacific Earthquake Engineering Research Center, in preparation.
- Kramer, S.L., Arduino, P., Baska, D.A., and Li, P. (2001). "Dynamic Stiffness of Piles in Liquefiable Soils," Washington State Department of Transportation, in press.
- Kramer, S.L., Arduino, P., Eberhard, M.O., and Jones, A.L. (2001). "Alaskan Way Viaduct Instrumentation System," Washington State Department of Transportation, 125 pp.
- Jones, A.L., Kramer, S.L., and Arduino, P. (2002). "Estimation of Uncertainty in Geotechnical Properties for Performance-Based Earthquake Engineering," *PEER Report 2001/03*, 104 pp..
- Kramer, S.L. and Elgamal, A.-W. (2002). "Modeling Soil Liquefaction Hazards for Performance-Based Earthquake Engineering," *PEER Report 2001/13*, 165 pp.
- Kramer, S.L. and Wang, C.H. (2004). "Residual Strength of Liquefied Soil," *PEER Report 2005/xx*, in press, 240 pp.
- Ilnkatharan, M., Sasaki, T., Shin, H., Kutter, B. L., Arduino, P., and Kramer, S. L., 2005. A demonstration of NEES system for studying soil-foundation-structure interaction- Centrifuge data report for MIL01. Rep.

No. UCD/CGMDR-05/05, Ctr. for Geotech. Modeling , Dept. of Civ. and Envir. Engrg., University of California, Davis, Calif.

Kramer, S.L., Mayfield, R.T., and Huang, Y.-M. (2008). "Performance-Based Liquefaction Potential Evaluation," Project Report, USGS Project No. 06HQGR0041, 50 pp.

Kramer, S.L., Arduino, P., and Shin, H.S. (2008). "Performance of Bridges in Liquefiable Soil," PEER Project Report, Pacific Earthquake Engineering Research Center, 200 pp.

Kramer, S.L. (2009). "Evaluation of Liquefaction Hazards in Washington State," Washington State Transportation Center, Final Report, 245 pp.

Invited Lectures and Seminars

Locations (institution, etc.)	Title of Seminar/Lecture	Date (month/year)
Invited Panel Member, Workshop on Geotechnical Engineering Research at U.S. Universities, USUCGER, Houston, Texas	"Young Researcher's Perspective"	March, 1987
Seattle Geotechnical Section, ASCE, Short Course on Applications of Probabilistic Methods in the Applied Earth Sciences, Seattle, Washington	"Fundamentals of Probability"	April, 1987
ASCE Seattle Geotechnical Section Spring Seminar on Geotechnical Aspects of Earthquake Engineering, Seattle, Washington	"Ground Response Analysis"	May, 1990
ASCE Seattle Geotechnical Section Spring Seminar on Geotechnical Aspects of Earthquake Engineering, Seattle, Washington	"Evaluation of Liquefaction Potential"	May, 1990
Structural and Geotechnical Engineering Seminar, Washington State University, Pullman, Washington	"Dynamic Field Testing of Piles in Peat"	October, 1990
Seattle Geotechnical Group, ASCE	"Dynamic Response of Pile Foundations in Peat"	March, 1991
GeoEngineers, Inc., Seminar, Redmond, Washington	"Seismic Risk and Ground Response Analysis"	April, 1991
National Science Foundation Workshop on Soil Improvement and Foundation Remediation with Emphasis on Seismic Hazards. Seattle, Washington	"Overview of Seismic Hazards"	August, 1991
Department of Geotechnical Engineering, Norwegian Institute of Technology, Trondheim, Norway	"Applications of System Identification in Geotechnical Engineering"	November, 1994
Institute of Solid Earth Physics, University of Bergen, Bergen, Norway	"Engineering Seismic Hazards"	November, 1994
Norwegian Earthquake Engineering Society, Oslo, Norway	"Introduction to Earthquake Engineering"	November, 1994

Northwest Engineers Club, Bellingham, Washington	"Seismic Hazards – Around the World and in the Puget Sound Basin"	January, 1995
Woodward-Clyde Consultants, Seattle, Washington	"Seismic Slope Stability Analysis – A New Approach"	March, 1995
University of Tokyo, Tokyo, Japan	"The Effect of Compliance and Energy Dissipation on Slope Movements During Earthquakes"	March, 1995
Business Disaster Preparedness Conference, American Red Cross, Seattle, Washington	"Earthquake Damage in Kobe, Japan"	April, 1995
International Conference of Building Officials, Pacific Northwest Chapter, Seattle, Washington	"Geotechnical Earthquake Engineering"	June, 1996
University of California at San Diego, La Jolla, California,	"The Effect of Liquefaction on Pile Foundations"	August, 1996
Seattle Geotechnical Group, ASCE	"Liquefaction and the Alaskan Way Viaduct"	October, 1996
University of California at Berkeley, Berkeley, California	Seismic Hazards in Seattle	April, 1997
Washington State University, Pullman, Washington	Liquefaction and the Alaskan Way Viaduct	September, 1997
University of California at Los Angeles, Los Angeles, California	Liquefaction Hazards in Seattle	February, 1998
UW Alumni Meeting, Los Angeles, California	Earthquake Engineering Research at the University of Washington	March, 1998
Seattle Geotechnical Group, ASCE	Effects of Liquefaction on Pile Foundations	September, 1999
University of British Columbia, Vancouver, B.C.	Liquefaction and the Alaskan Way Viaduct	November, 1999
Vancouver Geotechnical Society, Vancouver, B.C.	Numerical Modeling of the Effects of Liquefaction on Pile Foundations	November, 1999
Portland Geotechnical Group, ASCE, Portland, Oregon	Effects of Liquefaction on Pile Foundations	November, 1999
Earthquake Engineering Research Institute Technical Briefing, San Francisco, California	Seismological and Geotechnical Aspects of the February 28, 2001 Nisqually Earthquake	April, 2001
Earthquake Engineering Research Institute Technical Briefing, Pasadena, California	Seismological and Geotechnical Aspects of the February 28, 2001 Nisqually Earthquake	April, 2001
Earthquake Engineering Research Institute Technical Briefing, Washington, D.C.	Seismological and Geotechnical Aspects of the February 28, 2001 Nisqually Earthquake	April, 2001

ASCE Geotechnical Group, Los Angeles Section, Los Angeles, California	Improved Procedures for Estimation of Lateral Spreading Deformations	June, 2001
Vancouver Society of Civil Engineers, Vancouver Geotechnical Society, Vancouver, B.C.	Geotechnical Engineering Aspects of the Nisqually Earthquake	October, 2001
Seattle ASCE Geotechnical Group Spring Seminar, Seattle, Washington	Seismicity of the Pacific Northwest	April, 2002
Universidad de Chile, Santiago, Chile	Prediction of the Residual Strength of Liquefied Soil	June, 2004
Universidad de Chile, Santiago, Chile	Effects of Lateral Spreading on Pile Foundations	June, 2004
Universidad de Chile, Santiago, Chile	Performance-Based Earthquake Engineering: Recent Developments, Implication, and Opportunities for Geotechnical Engineering Practice	June, 2004
KU-UW International Symposium on Design Strategy towards Safety and Symbiosis of Urban Space, Seattle, Washington	Characterization of Earthquake Loading for Liquefaction Hazard Evaluation	June, 2004
Kobe University, Kobe, Japan	Estimation of Permanent Displacements of Reinforced Slopes	January, 2005
ASCE Geotechnical Group, Portland, Oregon	Residual Shear Strength of Liquefied Soil	March, 2005
ASCE Seattle Section Meeting, Seattle	Performance-Based Liquefaction Hazard Evaluation	February, 2006
Robert D. Holtz Symposium, Seattle	Performance-Based Earthquake Engineering: Implications for Geotechnical Practice	April, 2007
University of California, San Diego	Performance-Based Liquefaction Hazard Evaluation	June, 2007
Politecnico di Torino, Torino, Italy	Performance-Based Earthquake Engineering: Implications for Geotechnical Practice	December, 2007
Politecnico di Torino, Torino, Italy	Performance-Based Liquefaction Hazard Evaluation: Concepts and Tools	December, 2007
ROSE School, Pavia, Italy	Performance-Based Liquefaction Hazard Evaluation	December, 2007
Sowers Symposium, Georgia Tech, Atlanta	Site Response Analysis in Geotechnical Engineering Practice (State of the Practice invited presentation)	May, 2008
EERI Deep Foundation Soil-Structure Interaction Seminars – Seattle, San Francisco, and Los Angeles	Soil-Structure Interaction: Basics and Deep Foundations	July, 2008

CSMIP Annual Seminar, Los Angeles	Turkey Flat Ground Motion Predictions – Initial Review	September, 2008
ASCE Los Angeles Section Spring Seminar, Long Beach	Performance-Based Evaluation of Liquefaction Hazards	April, 2009

Presentations Given at Conferences

Conference Title/Location	Title of Seminar/Lecture	Date (month/year)
22 nd Symposium on Engineering Geology and Soils Engineering, Boise, Idaho	"Experimental Investigation of the Effects of Earthquake Shaking on Passive Pressures Against a Non-Yielding Wall"	February, 1986
Committee on Foundations for Bridges and Other Structures, Transportation Research Board, Washington, D.C.	"Lateral Load Response of Nonlinear Piles"	January, 1987
Workshop on Geotechnical Engineering Research at U.S. Universities, USUCGER, Houston, Texas	"Geotechnical Engineering Research at the University of Washington"	March, 1987
Symposium on Earthquake-Induced Landslides, Geologic Society of America, Spokane, Washington	"Recent Developments in Analysis of Liquefaction-Induced Landslides"	May, 1989
69 th Annual Meeting, Transportation Research Board, Washington, D.C.	"Evaluation of In-situ Strength of a Peat Deposit from Laterally Loaded Pile Test Results"	January, 1990
Northwest Geotechnical Engineers Workshop Vancouver, Washington	"Evaluation of Bridge Approach Slab Effectiveness"	August, 1991
Third International Conference on Case Histories in Geotechnical Engineering, St. Louis, Missouri	"Case Histories of Geotechnical Earthquake Engineering" (invited)	April, 1993
50 th Anniversary meeting, Earthquake Engineering Research Institute, San Francisco, California	"The Development of Geotechnical Earthquake Engineering" (invited)	February, 1998
International Workshop on the Physics and Mechanics of Soil Liquefaction, Baltimore, Maryland	"Experimental Measurement of the Residual Strength of Particulate Materials"(invited)	September, 1998
Second International Conference on Earthquake Geotechnical Engineering, Lisbon, Portugal	"Constitutive Modeling of Cyclic Mobility and Implications for Site Response" (invited)	June, 1999
International Workshop on the 923 (Chi-Chi) Earthquake, Taichung, Taiwan	"Geotechnical Damage Observations and Implications for Reconstruction" (invited)	December, 1999
Penrose Conference on Cascadia Subduction Zone Earthquakes, Seaside, Oregon	"Implications of Great Cascadia Subduction Zone Earthquakes for Liquefaction and Landslides" (invited)	June, 2000

GeoEng 2000, Melbourne, Australia	“Liquefaction and Lateral Soil Movement”	November, 2000
PEER Annual Meeting, Oakland, California	“Ground Deformation and Lateral Spreading”	January, 2001
International Geosynthetics Engineering Forum, Taipei, Taiwan	“Seismic Performance of MSE Structures in Washington State” (invited)	November, 2001
International Workshop on Modeling in Geotechnical Earthquake Engineering, Cleveland, Ohio	“Use of Numerical Simulation in the Development of Empirical Predictions of Liquefaction Behavior” (invited)	November, 2001
Annual Meeting of the Seismological Society of America, Victoria, B.C.	“Geotechnical Engineering Aspects of the Nisqually Earthquake” (invited)	April, 2002
U.S.-Japan Workshop on Seismic Disaster Mitigation in Urban Areas by Geotechnical Engineering, Anchorage, Alaska, in press.	“Sand Behavior at Large Strain in Ring Simple Shear”	June, 2002
U.S.-Taiwan Workshop on Soil Liquefaction, Hsinchu, Taiwan	“Ground Motions and Liquefaction – The Loading Part of the Equation”	November, 2003
7-9. 11th Int’l Conf. on Soil Dynamics and EQ Eng./3rd Int’l. Conf. on EQ Geotech. Eng., Berkeley, CA.	“The Prediction of Reinforced Slope Performance During Earthquakes”	January, 2004
International Workshop on Uncertainties in Nonlinear Soil Properties and their Impact on Modeling Dynamic Soil Response, Berkeley, California	“Practical Use of Geotechnical Site Response Models”	March, 2004
International Society of Earthquake Engineering Conference, Kobe, Japan.	“De-aggregation of liquefaction hazard”	January, 2005
ASCE GeoFrontiers Conference, Austin, Texas	“Performance-Based Liquefaction Hazard Evaluation”	January, 2005
Norwegian Geotechnical Institute, Oslo, Norway	Behavior of Pile Foundations in Liquefiable Soils during Earthquakes	October, 2005
Microsoft Research, Redmond, Washington	“Seismic Hazards in the Puget Sound Region”	November, 2005
8 th U.S. National Conference on Earthquake Engineering, San Francisco	“Performance-Based Liquefaction Hazard Evaluation: Implications for Codes and Standards”	April, 2006
Lillehammer	“Instrumental Intensity Scales for Geohazards”	June, 2006
Turkey Flat Blind Prediction Workshop, San Francisco	“Review and Interpretation of Equivalent Linear Analyses”	September, 2006

US-Japan Bridge Workshop, Seattle	“Performance-Based Liquefaction Potential: A Step Toward More Uniform Design Requirements”	October, 2006
Fourth International Conference on Earthquake Geotechnical Engineering, Thessaloniki, Greece	“Performance-Based Lateral Spreading Evaluation”	June, 2007
Fourth International Conference on Earthquake Geotechnical Engineering, Thessaloniki, Greece	“Review of Papers in Session 1	June, 2007
Fourth International Conference on Earthquake Geotechnical Engineering, Thessaloniki, Greece	Performance-Based Earthquake Engineering: New Demands for Geotechnical Research	June, 2007
Geotechnical Earthquake Engineering and Soil Dynamics IV (GEESD IV), Sacramento, California	Performance-Based Earthquake Engineering: Opportunities and Implications for Geotechnical Engineering Practice, <i>Invited Keynote Lecture</i>	May, 2008
International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Tokyo, Japan	Role of soil investigation in performance-based design	June, 2009
International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, Tokyo, Japan	Development of performance criteria for foundations and earth structures, <i>Invited Theme Lecture</i>	June, 2009

Professional Licenses

Registered Civil Engineer, California (inactive)

Professional Society Membership

American Society of Civil Engineers
 International Society for Soil Mechanics and Geotechnical Engineering
 U.S. National Society
 Seismological Society of America
 ASFE: The International Society of Firms Practicing in the Geosciences
 U.S. Universities Council on Geotechnical Engineering Research
 Earthquake Engineering Research Institute

Professional Society and Other Service

American Society of Civil Engineers, Member
 Geotechnical Division *ASCE News* Assoc. Correspondent, Oct. 1988-Sept. 1989
 Geotechnical Division *ASCE News* Correspondent, October 1989-1992
 Soil Dynamics Committee, Member

Chairman, Organizing Committee, 1998 Specialty Conference on Geotechnical Earthquake
 Engineering and Soil Dynamics
Geotechnical News, USNS Editor, October 1989-October 1992
 Editorial Board Member, *Journal of Geotechnical and Geoenvironmental Engineering*, 2004 - 2008
 Conference and Events Committee, Member
 GeoTrans 2004, Organizing Committee Member
 Earthquake Engineering and Soil Dynamics 2008, Organizing Committee Member
 Conference Coordination Committee, Chair, 2006-present
 U.S. Universities Council on Geotechnical Engineering Research
 University of Washington Contact Member
 Member, Executive Committee, 1986-87
 Member, Board of Directors, 1988-1991
 Chairman, Nominating Committee, 1988-89
 Secretary, 1989-1991
 Transportation Research Board, Associate
 Committee A2L03, Soil and Rock Properties, Member
 Pacific Earthquake Engineering Research (PEER) Center
 Executive Management Committee Member
 Research Executive Committee Member
 Seismological Society of America
 Technical Session Organizer, 1999 Annual Meeting
 Technical Session Moderator, 1999 Annual Meeting

Awards and Honors

Chi Epsilon Civil Engineering Honor Society, 1976
 Honor Students Society, University of California at Berkeley, 1976
 Research Initiation Award, National Science Foundation, 1985
 Presidential Young Investigator Award, National Science Foundation, 1988
 Arthur Casagrande Professional Development Award, ASCE, 1991
 Walter Huber Research Prize, ASCE, 1996
 John R. Kiely Professorship, University of Washington, 1997
 Norman Medal, ASCE, 2009