

Academic Vita

Name: Matthew R. Kuhn

Academic Rank and Department: Professor of Civil Engineering

Education: Ph.D., Civil Engineering, University of California, Berkeley, CA, 1984-1987.
Dissertation title: *Fundamental Aspects of Soil Creep*.

M.E., Civil Engineering, University of California, Berkeley, CA, 1982-1984. Project title: "Soil properties in an anaerobic-reducing environment."

M.E., Petroleum Engineering, Tulane University, New Orleans, LA, 1980-1982.

B.S., Civil Engineering, cum laude, University of Missouri, Columbia, MO, 1971-1975.

Academic Appointments:

Br. Godfrey Vassallo Professor of Civil Engineering, Donald P. Shiley School of Engineering, University of Portland, Aug. 2017-present.

Interim Dean, Donald P. Shiley School of Engineering, University of Portland, July 2019-2020.

Visting Professor, University of Lyon, INSA-Lyon, Laboratoire GEOMAS, Villeurbanne, France, 2016, 2018, 2019.

Professor of Civil Engineering, Donald P. Shiley School of Engineering, University of Portland, Aug. 2005-2017.

Associate Professor of Civil and Environmental Engineering, School of Engineering, University of Portland, Aug. 1993-2005.

Assistant Professor of Civil Engineering, School of Engineering, University of Portland, 1987-1993.

Research Interests:

Geotechnical engineering, with emphasis in granular mechanics, constitutive modeling, and material instabilities.

Courses Taught: (* Taught in 2016-2019 academic years)

EGR101	Intro. to engineering	CE372	Construction matls. lab.
EGR111*	Intro. to engrg. computing	CE401*	Computational methods
EGR110	Intro. to engineering	CE422*	Geotechnical design
CE200	Civil engineering seminar	CE441*	Structural steel design
CE302*	Construction materials	CE445	Timber design
CE321*	Geotechnical engineering	CE452	Earthquake engineering
CE350	Structural analysis	CE472	Structural engrg. lab.
CE371*	Geotechnical laboratory	CE481-482	Senior capstone projects

Membership In Professional Societies and Positions Held:

Chair, Granular Materials Committee, Engineering Mechanics Institute, 2013-2105.
American Society of Civil Engineers (ASCE), member
Geotechnical Institute (ASCE), member.
Engineering Mechanics Institute (ASCE), member.
American Society of Engineering Education, campus representative and member.

Awards, Fellowships, and Honors:

Elected Fellow of the Engineering Mechanics Institute, 2019.
James Culligan Award, University of Portland, 2018.
Faculty Scholarship Award, University of Portland, 2004.
Sabbatical leave, University of Portland, Spring 2002.
Teaching Award, American Society for Engineering Education, Pacific Northwest Section, 1997.
Outstanding Teaching Award, University of Portland, 1993.

Research Metrics: Google Scholar h-index = 23. Scopus h-index = 19. Citations = 1875.

Refereed Publications and Book Chapters:

Matthew R. Kuhn and Ali Daouadji, "Simulation of undrained quasi-saturated soil with pore pressure measurements using a discrete element (DEM) algorithm," *Soils and Foundations*, 2020, in press.

Matthew R. Kuhn, Kiichi Suzuki, and Ali Daouadji, "Linear-frictional contact model for 3D discrete element simulations of granular systems," *International Journal for Numerical Methods in Engineering*, 2020, Volume 121, No. 3, pp. 560-569. DOI 10.1002/nme.6216

Matthew R. Kuhn, Florent Prunier, Ali Daouadji, "Stiffness pathologies in discrete granular systems," *International Journal for Numerical and Analytical Methods in Geomechanics*, 2019, Vol. 43, No. 5, pp. 888-918, DOI 10.1002/nag.2922.

Matthew R. Kuhn and Ali Daouadji, "Stress fluctuations during monotonic loading of dense three-dimensional granular materials," *Granular Matter*, 2019, 21:10.

Matthew R. Kuhn and Ali Daouadji, "Multi-directional behavior of granular materials and its relation to incremental elastoplasticity," *International Journal of Solids and Structures*, 2018, Volume 152-153, pp. 305-323.

Matthew R. Kuhn and Ching S. Chang, "Measurement of higher-order stress-strain effects in granular materials undergoing non-uniform deformation," *Mechanics Research Communications*, 2018, Volume 92, pp. 64-60. doi.org/10.1016/j.mechrescom.2018.07.008.

Matthew R. Kuhn and Ali Daouadji, "Quasi-static incremental behavior of granular materials: Elastic-plastic coupling and micro-scale dissipation," *Journal of the Mechanics and Physics of Solids*, 2018, Volume 114, pp. 219-237. doi.org/10.1016/j.jmps.2018.02.019

Matthew R. Kuhn, "Contact transience during slow loading of dense granular materials," *Journal of Engineering Mechanics*, 2017, Volume 143, No. 1, C4015003(9).

- Daouadji Ali, Matthew R. Kuhn, Takashi Matsushima, Anil Misra, "Special Issue on Horizons in Granular Mechanics: The Legacy of Dr. Masao Satake." *Journal of Engineering Mechanics*, 2017, Volume 143, No. 1, C2016001.
- David M. Walker, Antoinette Tordesillas, and Matthew R. Kuhn. "Spatial connectivity of force chains in a simple shear 3D simulation exhibiting shear bands." *Journal of Engineering Mechanics*, 2017, Volume 143, No. 1, C4016009.
- Matthew R. Kuhn, "The critical state of granular media: convergence, stationarity and disorder," *Geotechnique*, 2016, Volume 66, No. 11, pp. 902-909. DOI: 10.1680/jgeot.16.P.008.
- Matthew R. Kuhn, "Maximum disorder model for dense steady-state flow of granular materials," *Mechanics of Materials*, 2016, Volume 93, pp. 63-80. DOI:10.1016/j.mechmat.2015.10.008.
- Kuhn, Matthew R., WaiChing Sun, and Qi Wang. "Stress-induced anisotropy in granular materials: fabric, stiffness, and permeability." *Acta Geotechnica*, 2016, Volume 10, No. 4, pp. 399-419.
- Matthew R. Kuhn, "Contact transience during slow loading of dense granular materials," *Journal of Engineering Mechanics*, DOI: 10.1061/(ASCE)EM.1943-7889.0000992, 2015.
- Antoinette Tordesillas, Sebastian Pucilowski, Steven Tobin, Matthew R. Kuhn, Edward Ando, Gioacchino Viggiani, Andrew Druckrey and Khalid Alshibli, "Shear bands as bottlenecks in force transmission," *Eurphysics Letters*, 2015, Vol. 110, 58005, doi: 10.1209/0295-5075/110/58005.
- Matthew R. Kuhn, WaiChing Sun, Qi Wang, "Stress-induced anisotropy in granular materials: fabric, stiffness, and permeability," *Acta Geotechnica*, 2015, Vol. 10, No. 4, pp. 399-419, DOI 10.1007/s11440-015-0397-5.
- Matthew R. Kuhn, Hannah E. Renken, Austin D. Mixsell, and Steven L. Kramer, "Investigation of cyclic liquefaction with discrete element simulations," *Journal of Geotechnical and Geoenvironmental Engineering*, 2014, Vol. 140, No. 12, 04014075-1-13.
- Matthew R. Kuhn, "Dense granular flow as a topologically disordered process," *Granular Matter*, 2014, Vol. 16, No. 4, pp. 499-508.
- Matthew R. Kuhn, "Transient rolling friction model for discrete element simulations," *Comptes Rendus Mecanique*, 2014, Vol. 342, No. 3, pp. 129-140.
- Kiichi Suzuki and Matthew R. Kuhn, "Uniqueness of discrete element simulations in monotonic biaxial shear tests," *International Journal of Geomechanics*, 2014, Vol. 14, No. 5, 06014010.
- Kiichi Suzuki and Matthew R. Kuhn, "Discrete element simulations of cyclic biaxial shear of a granular material with oval particles," *International Journal of Geomechanics*, Vol. 14, No. 3, 06014005.
- WaiChing Sun, Matthew R. Kuhn, John W. Rudnicki, "A multiscale DEM-LBM analysis on permeability evolutions inside a dilatant shear band," *Acta Geotechnica*, 2013, Vol. 8, No. 5, pp. 465-480.
- Matthew R. Kuhn, "Implementation of the Jager contact model for discrete element simulations," *International Journal for Numerical Methods in Engineering*, 2011, Vol. 88, No. 1, pp. 66-82.
- Matthew R. Kuhn, "Micro-mechanics of fabric and failure in granular materials," *Mechanics of Materials*, 2010, Vol. 42, No. 9, pp. 827-840.
- Matthew R. Kuhn and Katalin Bagi, "Specimen size effect in discrete element simulations of granular assemblies," *Journal of Engineering Mechanics*, 2009, Vol. 135, No. 6, pp. 485-492.

- Matthew R. Kuhn and Ching S. Chang, "Stability, bifurcation, and softening in discrete systems: a conceptual approach for granular materials," *International Journal of Solids and Structures*, 2006, Vol. 43, No. 20, pp. 6026-6051.
- S. J. Antony, Matthew R. Kuhn, D. C. Barton, and R. Bland, "Strength and signature of force networks in axially compacted sphere and non-sphere granular media: micromechanical investigations," *Journal of Physics D: Applied Physics*, 2005, Vol. 38, pp. 3944-3952.
- Matthew R. Kuhn and Katalin Bagi, "On the relative motions of two rigid bodies at a compliant contact: application to granular media," *Mechanics Research Communications*, 2005, Vol. 32, No. 4, pp. 463-480.
- Ching S. Chang and Matthew R. Kuhn, "On virtual work and stress in granular media," *International Journal of Solids and Structures*, 2005, Vol. 42, No. 13, pp. 3773-3793.
- Matthew R. Kuhn, "Are granular materials simple? An experimental study of strain gradient effects and localization," *Mechanics of Materials*, 2005, Vol. 37, No. 5, pp. 607-627.
- Matthew R. Kuhn and Katalin Bagi, "Contact rolling and deformation in granular media," *International Journal of Solids and Structures*, 2004, Vol. 41, No. 21, pp. 5793-5820.
- S. Joseph Antony, Regina O. Momoh, and Matthew R. Kuhn, "Micromechanical modelling of oval particulates subjected to bi-axial compression," *Computational Material Science*, 2004, Vol. 29, No. 4, pp. 494-498.
- S. Joseph Antony and Matthew R. Kuhn, "Influence of particle shape on granular contact signatures and shear strength: New insights from simulations," *International Journal of Solids and Structures*, 2004, Vol. 41, No. 21, pp. 5863-5870.
- Matthew R. Kuhn and Katalin Bagi, "Alternative definition of rolling in a granular assembly," *Journal of Engineering Mechanics*, ASCE, 2004, Vol. 130, Vol. 7, pp. 826-835.
- Katalin Bagi and Matthew R. Kuhn, "A definition of particle rolling in a granular assembly in terms of particle translations and rotations," *Journal of Applied Mechanics*, ASME, 2004, Vol. 71, No. 4, pp. 493-501.
- Matthew R. Kuhn, "A boundary integral for gradient averaging in two dimensions: application to polygonal regions in granular materials," *International Journal of Numerical Methods in Engineering*, 2004, Vol. 59, Issue 4, pp. 559-576.
- Matthew R. Kuhn, "Rates of stress in dense unbonded frictional materials during slow loading," chapter in *Granular Materials: Fundamentals and Applications*, 2004, S. J. Antony, Y. Ding, B. Hoyle (eds.), Royal Society of Chemistry, Cambridge, U.K., ISBN 0 85404 586 4.
- Matthew R. Kuhn, "An experimental method for determining the effects of strain gradients in a granular material," *Communications in Numerical Methods in Engineering*, 2003, Vol. 19, No. 8, pp. 573-580.
- Matthew R. Kuhn "Smooth convex three-dimensional particle for the Discrete Element Method," *Journal of Engineering Mechanics*, 2003, Vol. 129, No. 5, pp. 539-547.
- Matthew R. Kuhn, "Heterogeneity and patterning in the quasi-static behavior of granular materials," *Granular Matter*, 2003, Vol. 4, No. 4, pp. 155-166.
- Matthew R. Kuhn, "Discussion of the asymmetry of stress in granular media," *International Journal of Solids and Structures*, 2003, Vol. 40, No. 7, pp. 1805-1807.
- Matthew R. Kuhn, "Structured deformation in granular materials," *Mechanics of Materials*, Vol. 31, No. 6, June 1999, pp. 407-429.

Matthew R. Kuhn, "Deformation measures for granular materials," *Mechanics of Deformation and Flow of Particulate Materials*, Chang, C.S., Misra, A., Liang, R.Y., Babic, M. (eds.), ASCE, 1997, pp. 91-104.

Matthew R. Kuhn, "A flexible boundary for three-dimensional DEM particle assemblies," *Engineering Computations*, Vol. 12, No. 2, Feb. 1995, pp. 175-183.

Matthew R. Kuhn and Karen Vaught-Alexander, "Context for writing in the engineering curriculum," *Journal of Professional Issues in Engineering Education and Practice*, ASCE, Vol. 120, No. 4, Oct. 1994, pp. 392-400.

Matthew R. Kuhn and James K. Mitchell, "New perspectives on soil creep," *Journal of Geotechnical Engineering*, ASCE, Vol. 119, No. 3, Mar. 1993, pp. 507-524.

Matthew R. Kuhn and James K. Mitchell, "The modeling of soil creep with the discrete element method," *Engineering Computations*, Vol. 9, No. 2, Apr. 1992, pp. 277-287.

Matthew R. Kuhn and Mehmet I. Inan, "Foundations of affordable housing," *International Journal for Housing Science and Its Application*, Vol. 13, No. 3, 1989, pp. 291-296.

Papers Presented to Professional Meetings:

Matthew R. Kuhn and Ali Daouadji, "Simulating poroelastic effects in the undrained loading of granular materials," *Engineering Mechanics Institute Conference (EMI2019)*, Pasadena, Massachusetts, June 21 - June 24, 2019.

Matthew R. Kuhn and Ali Daouadji, "Equilibrium, stability, and bifurcation pathologies in discrete granular systems," *Engineering Mechanics Institute Conference (EMI2018)*, Boston, Massachusetts, May 29 - June 1, 2018.

Matthew R. Kuhn and Ali Daouadji, "Incremental deformation in granular materials: elastic, plastic, and coupled," *Engineering Mechanics Institute Conference (EMI2017)*, San Diego, California, June 4-7, 2017.

Matthew R. Kuhn and Ali Daouadji, "Micromechanics of incremental stress probes of a granular material," *Engineering Mechanics Institute Conference (EMI2016)*, Vanderbilt University, May 22-25, 2016.

Matthew R. Kuhn and WaiChing Sun, "Contact longevity, speed, and migration during loading of dense granular materials," *Engineering Mechanics Institute Conference (EMI2015)*, Stanford University, June 16-19, 2015.

Matthew R. Kuhn, "Entropy model for granular materials at the critical state," *Engineering Mechanics Institute Conference (EMI2014)*, MacMasters University, Hamilton, Ontario, Canada, August 5-8, 2014.

Matthew R. Kuhn, "Granular flow at the critical state as a topologically disordered process," *Engineering Mechanics Institute Conference EMI2013*, Evanston, Illinois, Aug. 4-7, 2013.

Matthew R. Kuhn, "Entropy measures for the micro-topology of dense granular flow," *Gordon Research Conference on Granular and Granular-Fluid Flow*, Davidson College, Davidson, North Carolina, July 22-27, 2012.

Matthew R. Kuhn, Austin D. Mixsell, and Hannah D. Renken, "Simulating undrained loading of sand with the discrete element method," *2012 Joint Conference of the Engineering Mechanics Institute and 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (EMI/PMC 2012)*, South Bend, Indiana, June 17-20, 2012.

Matthew R. Kuhn, Hannah D. Renken, and Austin D. Mixsell, "Exploring liquefaction behavior of sand with discrete element simulations," *2012 Joint Conference of the Engineering Mechanics Institute and 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability* (EMI/PMC 2012), South Bend, Indiana, June 17-20, 2012.

Matthew R. Kuhn, "Rolling and friction in discrete element simulations," Engineering Mechanics Institute, *EMI2011 Conference*, Boston, Massachusetts, June 2-4, 2011.

Matthew R. Kuhn, "Measurements of strain gradient effects in granular materials and their relation to shear bands," Engineering Mechanics Institute, *EMI2010 Conference*, Los Angeles, California, Aug. 8-11, 2010.

Matthew R. Kuhn and Ching S. Chang, "Measurement of micro-polar effects in granular materials," *Powders and Grains 2009*, Masami Nakagawa and Stefan Luding (eds.), American Institute of Physics, 1145, pp. 1093-1095.

Matthew R. Kuhn, "Dry granular flow at the quasi-static limit," *The XVth International Congress on Rheology*, Monterey, California, August 3-8, 2008.

Matthew R. Kuhn and Katalin Bagi, "Micro-mechanics of granular flow at large strains," *Inaugural International Conference, Engineering Mechanics Institute*, Minneapolis, Minnesota, May 18-22, 2008.

Neil Gaspar and Matthew R. Kuhn, "A granular media with a negative Poisson's ratio," *Inaugural International Conference, Engineering Mechanics Institute*, Minneapolis, Minnesota, May 18-22, 2008.

Matthew R. Kuhn, "Granular fabric and stress at the critical state," *ASME International Mechanical Engineering Congress and Exposition*, Seattle, Washington, November 11-17, 2007.

Matthew R. Kuhn and Katalin Bagi, "Patterns in large and small granular assemblies: experiences of discrete element simulations," *X. Magyar Mechanikai Konferencia*, Miskolci Egyetem, Hungary, August 27-29, 2007.

Matthew R. Kuhn, "Bulk evolution of fabric and stress derived from contact migration rules," *18th ASCE Engineering Mechanics Conference*, Blacksburg, Virginia, June 3-6, 2007.

Katalin Bagi and Matthew R. Kuhn, "Sample size effect in discrete element simulations," 6th European Solid Mechanics Conference, 28 August - 1 September 2006, Budapest, Hungary.

Matthew R. Kuhn, "Multi-scale phenomena in granular materials," *Workshop on Multiscale Modeling of Materials: Mathematics and Computation*, Tacoma, Washington, May 25-30, 2006.

Matthew R. Kuhn, "Scaling in granular materials," *Powders and Grains 2005*, Proc. of the 5th International Conference on Micromechanics of Granular Media, Stuttgart, Germany, 18-22 July, 2005, R. Garcia-Rojo, H. J. Herrmann, S. McNamara (eds.), Balkema Publ., Leiden, 2005, Vol. 1, pp. 115-122.

Matthew R. Kuhn and Ching S. Chang, "Continuum models of discrete particle systems with particle shape consideration," *Joint ASME/ASCE/SES Conference on Mechanics and Materials*, Baton Rouge, La., June 1-3, 2005.

S. Joseph Antony and Matthew R. Kuhn, "Size effect of inclusions in granular media," *Joint ASME/ASCE/SES Conference on Mechanics and Materials*, Baton Rouge, La., June 1-3, 2005.

F. Sarangi, S. Joseph Antony, and Matthew R. Kuhn, "A hybrid DEM model suitable for micro and nano particulate systems incorporating long-range force contributions: preliminary results," *Third M.I.T. Conference on Computational Fluid and Solid Mechanics*, Cambridge, Mass., June 14-17, 2005.

- Matthew R. Kuhn, "Scaling in micro-geomechanics", *Micro-geomechanics Across Multiple Strain Scales*, Cambridge, England, March 20-23, 2005.
- Katalin Bagi and Matthew R. Kuhn, "Modelling of cohesive-frictional materials," *Proceedings of the 2nd International Symposium on Continuous and Discontinuous Modelling of Cohesive-Frictional Materials-CDM 2004*, Stuttgart, Sept. 27-28, 2004, P.A. Vermeer, W. Ehlers, H.J. Herrmann, and E. Ramm (eds.), Balkema Publ., Leiden, 2004, pp. 3-12.
- Matthew R. Kuhn and Takashi Matsushima, "Length scale in granular media." In *Proceedings of the 17th ASCE Engineering Mechanics Conference*, University of Delaware, Newark, Delaware, June 13-16, 2004, pp. 1-8.
- Matthew R. Kuhn and Katalin Bagi, "Particle rolling and its effects in granular materials." In *Quasi-Static Deformations of Particulate Materials*, Proceedings of the QuaDPM'03 Workshop, K. Bagi (ed.), pp. 151-158.
- Matthew R. Kuhn, "Evolution of stress in dense granular materials at the peak state of loading." In *Proceedings of the 16th ASCE Engineering Mechanics Conference*, University of Washington, Seattle, Washington, July 16-18, 2003, Paper no. 501, pp. 1-5.
- Regina Momoh, S. Joseph Antony, and Matthew R. Kuhn, "Effect of grain shape on the shear deformation characteristics of granular media." In *Proceedings of the Second M.I.T. Conference on Computational Fluid and Solid Mechanics*, Cambridge, Mass., June 17-20, 2003, pp. 490-493.
- Matthew R. Kuhn, "A torus primitive for particle shapes with the discrete element method." In *Discrete Element Methods: Numerical Modeling of Discontinua*, ASCE Publ., Reston, VA, Proceedings of the Third International Conference on Discrete Element Methods, Santa Fe, Sept. 23-25, 2002, pp. 42-46.
- Matthew R. Kuhn and Katalin Bagi, "Generalized continuum models for granular materials: bridging a transition from micro to macro." In *Proceedings of the Third International Conference on New Challenges in Mesomechanics*, R. Pyrz, J. Schjodt-Thomsen, J.C. Rauhe, T. Thomsen, and L.R. Jensen (eds.), Vol. 1, Aalborg, Denmark, Aug. 26-30, 2002, pp. 105-111.
- Matthew R. Kuhn and Katalin Bagi, "Particle rotations in granular materials." In *Proceedings of the 15th ASCE Engineering Mechanics Conference*, Columbia University, New York, June 2-5, 2002, pp. 1-7.
- Matthew R. Kuhn, "Quasi-static behaviour of granular materials: Recent successes and future challenges." Institute of Chemical Engineering, Particle Technology Subject Group Meeting, Leeds, U.K., Feb. 22, 2002.
- Matthew R. Kuhn, "The formation of shear bands in granular materials: New experiments and results." 2001 Mechanics and Materials Summer Conference, San Diego, Ca., June 27-29, 2001.
- Matthew R. Kuhn, "Strain gradient dependence and shear band formation in granular materials." In *Powders and Grains 2001*, Y. Kishino, (ed.). Proceedings of the Fourth International Conference on Micromechanics of Granular Media, Sendai, Japan, May 21-25, 2001, pp. 285-288.
- Matthew R. Kuhn, "The response of dense granular materials to large strain gradients." International Congress of Theoretical and Applied Mechanics, Chicago, IL, USA, Aug. 27-Sept. 2, 2000.
- Matthew R. Kuhn, "Writing communication: assessing both students and programs." In the *Proceedings of the ASEE 62nd Annual Pacific Northwest Section Meeting*, Bozeman, MT, USA, April 27-29, 2000.

- Matthew R. Kuhn, "Fabric and deformation in granular materials." In the *Proceedings of the 13th ASCE Engineering Mechanics Specialty Conference*, Johns Hopkins University, Baltimore, MD, USA, June 13-16, 1999. (CD-ROM)
- Matthew R. Kuhn, "Deformation mechanisms in granular materials." 35th Annual Technical Meeting, Society of Engineering Science, Pullman, WA, Sept. 27-30, 1998.
- Matthew R. Kuhn, "Micro-scale patterns in discrete element models of granular materials." Workshop on Micro-Structural Models of Rock Fracture, Pacific Institute for the Mathematical Sciences, Vancouver, B.C., Aug. 10-12, 1998.
- Matthew R. Kuhn, "Slip deformation structures in granular materials." In *Engineering Mechanics: A Force for the 21st Century*, Proceedings of the 12th Engineering Mechanics Conference, H. Murakami and J. E. Luco (eds.), ASCE (CD-ROM), May 17-20, 1998, pp. 1736-1739.
- Matthew R. Kuhn, "Technical writing for structural engineers." Structural Engineers Association of Oregon, Nov. 20, 1996.
- Matthew R. Kuhn, "Experimental measurement of strain gradient effects in granular materials." In *Engineering Mechanics*, Proceedings of the 11th Conf. on Engineering Mechanics, Lin Y.K. and Su, T. C. (eds.), ASCE, Vol. 2, May 19-22, 1996, pp. 881-885.
- Matthew R. Kuhn, "Networked data acquisition in the engineering laboratory." In the *Proceedings of the ASEE Annual National Conference*, Toledo, Ohio, June 21-25, 1992, pp. 486-489.
- Matthew R. Kuhn, "Factors affecting the incremental stiffness of particle assemblies." In *Mechanics Computing in 1990's and Beyond*, Adeli, H. and Sierakowski, R. L. (eds.), Vol. 2, Proceedings of the Engineering Mechanics Specialty Conference, ASCE, Columbus, OH, May 20-22, 1991, pp. 1229-1233.
- Matthew R. Kuhn, "A relaxation algorithm for use with discrete elements." In the *Proceedings of the 1st U.S. Conference on Discrete Elements*, Mustoe, G.G.W., Henriksen, M., and Huttelmaier, H-P (eds.), Golden, CO, October 17-20, 1989.
- Matthew R. Kuhn and Mehmet I. Inan, "Early integration of computational methods in the engineering curriculum." In *Computer Utilization in Structural Engineering*, Nelson, J. K. (ed.), Proceedings of the ASCE Structures Congress, San Francisco, CA, May 1-5, 1989, pp. 399-407.
- R. K. Liang, E. Tse, M. R. Kuhn and J. K. Mitchell, "Evaluation of a constitutive model for soft clay using the centrifuge." In the *Proceedings of the Symposium on Recent Advances in Geotechnical Centrifuge Modeling*, University of California, Davis, CA, 1984, 55-70.

Other Publications:

- Matthew R. Kuhn, *Granular Geomechanics*, ISTE Press, London, 2017, ISBN 9781785480713.
- Matthew R. Kuhn, *Computational Methods in Engineering* (lecture notes), 2014.
- Matthew R. Kuhn, *Oval and OvalPlot: Programs for Analyzing Dense Particle Assemblies with the Discrete Element Method*, available at <http://faculty.up.edu/kuhn/oval/oval.html>, 2010.
- Matthew R. Kuhn, *Style Files for ASCE-Like Documents*, available at <http://ctan.org/tex-archive/macros/latex/contrib/ascelike>, 2011.

Professional Service:

Manuscript reviewer for the following journals (about 20 per year):

Computer Methods in Applied Mechanics and Engineering
Continuum Mechanics and Thermodynamics
Engineering Computations
Geotechnical Testing Journal (ASTM)
Geotechnique (ICE)
Granular Matter
Journal of Engineering Mechanics (ASCE)
Journal of Geotechnical and Geoenvironmental Engineering (ASCE)
Journal of the Mechanics and Physics of Solids
Journal of Petroleum Science and Engineering
Journal of Professional Issues in Engineering Education and Practice (ASCE)
International Journal for Numerical and Analytical Methods in Geomechanics
International Journal of Solids and Structures
Mechanics of Materials
Powder Technology
Proceedings of the Royal Society A
Soil Dynamics and Earthquake Engineering

External proposal reviewer, journal editor:

Associate Editor, *Journal of Engineering Mechanics*, 2013-2016.
 Guest editor, special issue of *Journal of Engineering Mechanics*, in progress.
 U.S. Army Corps of Engineers' Engineer Research and Development Center (ERDC).
 Dutch Organization for Scientific Research (NWO), 2010.
 External proposal reviewer, Israel Science Foundation, 2010.
 Proposal reviewer, NSF IRES program, 2009.
 Proposal review panel, National Science Foundation's CAREER Program, Washington, D.C., October 25-26, 2007.
 Research Proposal Reviewer, National Science Foundation, 2005.
 Research Proposal Reviewer, NSERC of Canada, 2005.
 Guest editor, special issue of *Engineering Computations*, Vol. 21, No. 2/3, 2004.
 Research Proposal Reviewer, American Chemical Society.

Regularly assist in organizing mini-symposia and sessions for the annual conferences of the Engineering Mechanics Institute (EMI), 2010-present.

Chair or Vice Chair of the Granular Materials Technical Committee of the Engineering Mechanics Institute (EMI), 2012-2016.

Symposium organizer, *Dr. Masao Satake Memorial Symposium on Granular Mechanics*, Stanford University, June 2015.

External proposal reviewer, U.S. Army Corps of Engineers' Engineer Research and Development Center (ERDC), 2011.

Advisory Committee member, International Symposium on Geomechanics and Geotechnics: From Micro to Macro, Tongji University, Shanghai, China, Oct. 10-20, 2010.

External proposal reviewer, Research Grants Council of Hong Kong, 2016-present.

External proposal reviewer, Dutch Organization for Scientific Research (NWO), 2010.

External evaluator, faculty promotion case, South Dakota State University, 2010.

Manuscript reviewer, Geo-Frontiers 2011 conference, 2010.

External proposal reviewer, Israel Science Foundation, 2010.

External Examiner of Ph.D. candidate, Kingston University, U.K., Feb. 20, 2002.