

# Victor N. Kaliakin

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## Education

Ph.D., Department of Civil Engineering, University of California, Davis, 1985.

*Dissertation:* Bounding Surface Elastoplasticity-Viscoplasticity for Clays.

*Committee:* Y. F. Dafalias (chair), L. R. Herrmann, K. Arulanandan.

M.Sc., Department of Civil Engineering University of California, Berkeley, 1979.

B.Sc. (*with high honors*), Department of Civil Engineering University of California, Davis, 1978.

## Employment

*Invited Professor* (on sabbatical leave from the University of Delaware), L. N. Gumilyov Eurasian National University, Astana, Kazakhstan (October to December 2018).

*Professor*, Department of Civil and Environmental Engineering, University of Delaware (September 2013 to present).

*Visiting Associate Professor* (on sabbatical leave from the University of Delaware), Department of Civil Engineering and Engineering Mechanics, Columbia University, New York City, NY (January to June 2012).

*Visiting Scholar* (on sabbatical leave from the University of Delaware), Department of Civil Engineering, Royal Military College of Canada, Kingston, Ontario (August 2004 to August 2005).

*Associate Professor* (tenured), Department of Civil and Environmental Engineering, University of Delaware (September 1996 to September 2013).

*Assistant Professor*, Department of Civil and Environmental Engineering, University of Delaware (January 1990 to September 1996).

*Member of Technical Staff*, Sandia National Laboratory, Livermore, CA, Solid Mechanics Division (August 1987 to November 1989).

*Visiting Assistant Professor*, Department of Civil Engineering and Engineering Mechanics, University of Arizona (August 1986 to July 1987).

*Associate Instructor* (Post-Doctoral), Department of Civil Engineering, University of California, Davis (1986).

*Research Assistant*, Department of Civil Engineering, University of California, Davis (January 1983 to December 1985).

*Assistant Research Engineer*, Engineering Computer Corporation, Sacramento, CA (June 1981 to April 1983).

*Senior Engineer II*, Engineering Decision Analysis Company, Inc., Palo Alto, CA (July 1979 to September 1980).

*Engineering Assistant*, Department of the Army, U. S. Army Corps of Engineers, Sacramento District, Sacramento, CA (June to September 1978).

## Consulting Activity

Federal Highway Administration (FHWA), Turner-Fairbank Highway Research Center, McLean, VA. “Geotechnical Modeling: Geosynthetic Reinforced Soil (GRS)” - Constitutive modeling of gravels and polymeric reinforcement at load levels up to failure (April 2016 to July 2017).

U.S. Army Research Office. Development of an Efficient Parallelized Algorithm for the Finite Element Simulation of the Equations of Electro-Physiology in a Shared Memory Environment (May 1999 to May 2000).

U.S. Army Research Office. Development of a Finite Element Formulation of the Bidomain Equations of Cardiac Electro-Physiology in a Geometrically Realistic Heart Model for Simulation in the Origin2000 Environment (March to December 1998).

ESSO Resources Canada, LTD. Numerical analysis of foundation clays underlying a sand island in the Beaufort Sea (June 1986 to June 1987).

Lawrence Livermore National Laboratory. Modeling high-pressure response of clayey sands (January 1985 to September 1986).

## Fields of Research Interest

Computational geomechanics.

Development and efficient implementation of constitutive models for cohesive soils.

Development of constitutive models for silt-clay transition soils.

Development of constitutive models for polymeric reinforcement.

## Professional Affiliation

Affiliated Member, Center for Composite Materials, University of Delaware (May 2000 to present).

Member of Dissertation Council Committee of Eurasian National University (Construction Specialty), Nur-Sultan, Kazakhstan (2020–2023).

Research Affiliate, Liberty University, Lynchburg, VA (2023 to present) (<https://www.liberty.edu/engineering/faculty/victor-kaliakin/>).

## Editorship

Associate Editor, *Journal of Engineering Mechanics*, ASCE (October 2001 to September 2003).

Member of Editorial Board, *Geosynthetics International* (September 2006 to present).

Member of Editorial Board, *Herald of the L. N. Gumilyov Eurasian National University*, Astana, Kazakhstan. *Technical Sciences and Technology Series* (February 2018 to present).

Member of Editorial Board, *Transportation Infrastructure Geotechnology* (May 2018 to present).

Member of Editorial Board, *Technobius*, an open-access electronic journal for the fields of Construction and Materials Science (June 2024 to present).

## Honors

Life member, Tau Beta Pi National Engineering Honor Society.

Listed in *Who's Who Among Rising Young Americans*, 1991 and 1992.

Listed in *American Men and Women of Science*, 1995-96.

Listed in Marquis Who's Who in Science and Engineering, 1996-97.

Listed in Who's Who Among America's Teachers, 1998 (nominated by former undergraduate student).

Listed in Marquis Who's Who in the World, 17th edition, 1999-2000.

Invited Delegate, U.S.A.– Russia Geotechnical Engineering Workshop, Oakland, CA, March 29–30, 2012.

Invited Delegate, First Kazakhstan–USA Geotechnical Engineering Workshop, Astana & Almaty, Kazakhstan, July 2015.

Recipient of the L. N. Gumilyov Memorial Medal from the Eurasian National University, presented in Orlando, FL, March 7, 2018.

Delivered the Burmister Lecture (invited) at Columbia University, NY, March 9, 2018.

Invited Delegate, U.S.A.– Russia Geotechnical Engineering Symposium, Moscow & St. Petersburg, Russia, May 12–19, 2018.

Winner of the 2018 Fumio Tatsuoka Best Paper Award from the journal *Transportation Infrastructure Geotechnology* (February 2018). [Associated announcement: Wu, J. T. H. and Ling, H. I., *Transportation Infrastructure Geotechnology* **6**: 67 (2019) (<https://doi.org/10.1007/s40515-019-00071-0>)].

Selected Attendee, NSF Workshop on Engineering Mechanics Education, June 6, 2023, Georgia Institute of Technology, Atlanta, GA.

Delivered the first Alexander B. Fadeev Lecture, GFAC 2024 Conference, St. Petersburg State Architecture and Civil Engineering University, Russia (2024).

## Publications

### Books: authored

Kaliakin, V. N., *Approximate Solution Techniques, Numerical Modeling and Finite Element Methods*, New York: Marcel Dekker, Inc. (2002) (ISBN-10: 0-8247-0679-X; ISBN-13: 978-0824706791), 674 pages.

Kaliakin, V. N., *Soil Mechanics: Calculations, Principles, and Methods*, UK: Butterworth-Heinemann (2017) (ISBN-10: 0128044918; ISBN-13: 978-0128044919), 462 pages.

### Book: co-authored

DeNatale, J. S. and Kaliakin, V. N., *An Instructional Supplement for Mechanics of Materials*, GINN Press (1988) (ISBN: 0-536-57258-5), 125 pages.

### Books: co-edited

1. *Measuring and Modeling Time Dependent Soil Behavior*, ASCE Geotechnical Special Technical Publication **61**, edited by T. C. Sheahan and V. N. Kaliakin, New York: ASCE (1996), 275 pages.
2. *Constitutive Modeling of Geomaterials: Selected Contributions from Frank L. DiMaggio Symposium*, edited by H. I. Ling, A. Anandarajah, M. T. Manzari, V. N. Kaliakin and A. Smyth, Florida: Boca Raton: CRC Press (2003), 213 pages.
3. *Soils Constitutive Models. Evaluation, Selection, and Calibration*, ASCE Geotechnical Special Technical Publication **128**, edited by J. A. Yamamuro, and V. N. Kaliakin, New York: ASCE (2005), 512 pages.
4. *Calibration of Constitutive Models*, ASCE Geotechnical Special Technical Publication **139**, edited by J. A. Yamamuro, and V. N. Kaliakin, New York: ASCE (2005).
5. *Geosynthetics and Geosynthetic-Engineered Soil Structures*, Contributions from the Symposium Honoring Professor Robert M. Koerner, edited by H. I. Ling, V. N. Kaliakin and D. Leshchinsky, Columbia University (2005), 303 pages.

### Edited Proceedings

1. *EM2004, The 17th Engineering Mechanics Conference*, edited by V. N. Kaliakin, J. T. Kirby, J. A. Yamamuro, B. Bhattacharya and H. W. Shenton, Newark, DE (2004). Published on CD-ROM.
2. *Calibration of Constitutive Models*, ASCE Geotechnical Special Technical Publication **139**, edited by J. A. Yamamuro and V. N. Kaliakin, Proceedings of the Geo-Frontiers 2005 Congress, Austin, TX. New York: ASCE (2005), 512 pp.
3. *Advances in Measurement and Modeling of Soil Behavior*, ASCE Geotechnical Special Publication **173**, edited by D. J. DeGroot, C. Vipulanandan, J. A. Yamamuro, V. N. Kaliakin, P. V. Lade, M. Zeghal, U. El Shamy, N. Lu, and C. R. Song, Proceedings of Sessions of Geo-Denver, Denver, CO. New York: ASCE (2007). Published on CD-ROM.
4. *Smart Geotechnics for Smart Societies*, Proceedings of the 17th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Astana, Kazakhstan, edited by A. Zhussupbekov, A. Sarsembayeva and V. N. Kaliakin, CRC Press, (<https://doi.org/10.1201/9781003299127>), (2023), 3040 pp.

### Special Journal Issues: co-edited

1. *Constitutive Modeling of Geomaterials*, Special Issue of the Journal of Engineering Mechanics, ASCE, **130**(6), edited by A. Anandarajah, M. T. Manzari and V. N. Kaliakin (2004).

### Chapters in Edited Books

1. Kaliakin, V. N. and Dechasakulsom, M., “Modeling the Time-Dependent Behavior of Geosynthetically Reinforced Soil Structures with Cohesive Backfill,” (invited paper) Chapter 4 in *Reinforced Soil Engineering: Advances in Research and Practice*, edited by H. I. Ling, D. Leshchinsky and F. Tatsuoka, New York: Marcel Dekker, Inc., 69–83 (2003).
2. Ling, H. I., Yue, D. and Kaliakin, V. N., “Geosynthetic-reinforced containment dike constructed over soft foundation: numerical analysis,” Chapter 16 in *Reinforced Soil Engineering: Advances in Research and Practice*, edited by H. I. Ling, D. Leshchinsky and F. Tatsuoka, New York: Marcel Dekker, Inc., 283–295 (2003).
3. Kaliakin, V. N. and Bathurst, R. J., “Review and Assessment of Numerical Models to Simulate Relaxation of Geosynthetics,” in *Geosynthetics and Geosynthetic-Engineered Soil Structures*, Contributions from the Symposium Honoring Prof. Robert M. Koerner, edited by H. I. Ling, V. N. Kaliakin and D. Leshchinsky, Columbia University, 203–249 (2005).
4. Kaliakin, V. N., Mashayekhi, M. and Nieto-Leal, A., “The Time- and Temperature-Related Behavior of Clays: Microscopic Considerations and Macroscopic Modeling,” Chapter 1 in *Clays and Clay Minerals*, edited by L. R. Wesley, Nova Publishers: New York, NY, 1–44 (2014). (ISBN: 978-1-63117-780-4).
5. Sheahan, T. C. and Kaliakin, V. N., “Integrating Micromechanics in Modeling Relaxation Behavior of Cohesive Soils,” *Poromechanics, A Tribute to Maurice A. Biot*, CRC Press: London (2020). ([doi.org/10.1201/9781003078487](https://doi.org/10.1201/9781003078487)), (eBook ISBN: 9781003078487).

### Refereed Papers Published in Archival Journals

1. Shen, C. K., Sohn, J., Mish, K., Kaliakin, V. N. and Herrmann, L. R., “Centrifuge Consolidation Study for Purposes of Plasticity Theory Validation”, *Consolidation of Soils: Testing and Evaluation*, ASTM STP **892**, edited by R. N. Yong and F. C. Townsend, American Society for Testing and Materials, Philadelphia, PA: 593–609 (1986).
2. Herrmann, L. R., Kaliakin, V. N., Shen, C. K., Mish, K. D. and Zhu, Z-Y., “Numerical Implementation of a Plasticity Model for Cohesive Soils”, *Journal of Engineering Mechanics, ASCE*, **113**(4): 500–519 (1987). ([10.1061/\(ASCE\)0733-9399\(1987\)113:4\(500\)](https://doi.org/10.1061/(ASCE)0733-9399(1987)113:4(500))).

3. Kaliakin, V. N. and Perano, K. J., "INTERP - A Fortran Callable Data Interpretation Subroutine System", *Advances in Engineering Software*, **10**(3): 136–142 (1988). ([doi:10.1016/0141-1195\(88\)90013-7](https://doi.org/10.1016/0141-1195(88)90013-7)).
4. Kaliakin, V. N. and Dafalias, Y. F., "Simplifications to the Bounding Surface Model for Cohesive Soils," *International Journal for Numerical and Analytical Methods in Geomechanics*, **13**(1): 91–100 (1989). ([doi:10.1002/nag.1610130108](https://doi.org/10.1002/nag.1610130108)) [abstract also available in *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **26**(3-4) (1989)].
5. Kaliakin, V. N., Muraleetharan, K. K., Dafalias, Y. F., Herrmann, L. R. and Shinde, S. B., "Foundation-Response Predictions Below Caisson-Retained Island", *Journal of Geotechnical Engineering, ASCE*, **116**(9): 1291–1308 (1990). ([ASCE 0733-9410\(1990\)116:9\(1291\)](https://doi.org/10.1061/(ASCE)0733-9410(1990)116:9(1291))) [abstract also available in *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **28**(2-3) (1991)].
6. Kaliakin, V. N. and Dafalias, Y. F., "Theoretical Aspects of the Elastoplastic-Viscoplastic Bounding Surface Model for Cohesive Soils", *Soils and Foundations*, Japanese Society of Soil Mechanics and Foundation Engineering, **30**(3): 11–24 (1990) [abstract also available in *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **28**(2-3) (1991)].
7. Kaliakin, V. N. and Dafalias, Y. F., "Verification of the Elastoplastic-Viscoplastic Bounding Surface Model for Cohesive Soils", *Soils and Foundations*, Japanese Society of Soil Mechanics and Foundation Engineering, **30**(3): 25–36 (1990) [abstract also available in *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **28**(2-3) (1991)].
8. Kaliakin, V. N., "A Simple Coordinate Determination Scheme for Two-Dimensional Mesh Generation", *Computers and Structures*, **43**(3): 505–516 (1992). ([http://dx.doi.org/10.1016/0045-7949\(92\)90284-7](http://dx.doi.org/10.1016/0045-7949(92)90284-7)).
9. Simáček, P., Kaliakin, V. N. and Pipes, R. B., "Pathologies Associated with the Numerical Analysis of Hyper-Anisotropic Materials", *International Journal for Numerical Methods in Engineering*, **36**(20): 3487–3508 (1993). ([doi:10.1002/nme.1620362006](https://doi.org/10.1002/nme.1620362006)).
10. Kaliakin, V. N., "Numerical Implementation and Solution Strategies for a Thermo-Elastoplastic-Viscoplastic Model For Cohesive Soils", *Computing Systems in Engineering*, **5**(2): 203–214 (1994).
11. Leshchinsky, D., Kaliakin, V. N., Bose, P. and Collin, J., "Failure Mechanism in Geogrid-Reinforced Segmental Walls: Experimental Implications", *Soils and Foundations*, Japanese Society of Soil Mechanics and Foundation Engineering, **34**(4): 33–41 (1994).
12. Kaliakin, V. N. and Li, J., "Insight Into Deficiencies Associated with Commonly Used Zero-Thickness Interface Elements", *Computers and Geotechnics*, **17**(2): 225–252 (1995) [abstract also available in *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **32**(6) (1995)]. ([http://dx.doi.org/10.1016/0266-352X\(95\)93870-0](http://dx.doi.org/10.1016/0266-352X(95)93870-0)).
13. Min, Y., Leshchinsky, D., Ling, H. I., and Kaliakin, V. N., "Effects of Sustained and Repeated Tensile Loads on Geogrid Embedded in Sand", *ASTM Geotechnical Testing Journal*, **18**(2): 204–225 (1995).
14. Simáček, P. and Kaliakin, V. N., "Notes on the Behavior of Transversely Loaded Inextensible Plates", *International Journal of Solids and Structures*, **33**(6): 795–810 (1996). ([http://dx.doi.org/10.1016/0020-7683\(95\)00075-L](http://dx.doi.org/10.1016/0020-7683(95)00075-L)).
15. Kaliakin, V. N., Chajes, M. J. and Januszka, T. F., "Analysis of Concrete Beams Reinforced with Externally Bonded Woven Composite Fabrics", *Composites: Part B*, **27B** (3-4): 235–244 (1996). ([http://dx.doi.org/10.1016/1359-8368\(95\)00017-8](http://dx.doi.org/10.1016/1359-8368(95)00017-8)).
16. Cui, L., Cheng, A. H-D., Kaliakin, V. N., Abousleiman, Y. and Roegiers, J.-C., "Finite Element Analysis of Anisotropic Poroelasticity: A Generalized Mandel's Problem and an Inclined Borehole Problem," *International Journal for Numerical and Analytical Methods in Geomechanics*, **20**(6): 381–401 (1996). ([doi:10.1002/\(SICI\)1096-9853\(199606\)20:6](https://doi.org/10.1002/(SICI)1096-9853(199606)20:6)).

17. Cui, L., Kaliakin, V. N., Abousleiman, Y. and Cheng, A. H-D., “Finite Element Formulation and Application of Poroelastic Generalized Plane Strain Problems”, *International Journal for Rock Mechanics and Mining Sciences & Geomechanics Abstracts*, **34**(6): 953–962 (1997).  
([http://dx.doi.org/10.1016/S1365-1609\(97\)80005-6](http://dx.doi.org/10.1016/S1365-1609(97)80005-6)).
18. Leshchinsky, D., Dechasakulsom, M., Kaliakin, V. and Ling, H., “Creep and Stress Relaxation of Geogrids”, *Geosynthetics International*, **4**(5): 463–479 (1997). *Tenth most cited paper since the inception of Geosynthetics International in 1994.*  
(see <http://www.icevirtuallibrary.com/upload/journals/GImostcited.pdf>).
19. Shuler, S. F., Advani, S. G. and Kaliakin, V. N., “Transient Analysis and Measurement of Anisotropic Heat Conduction in Transversely Isotropic Composite Materials”, *Journal of Composite Materials*, **33**(7): 594–613 (1999). (DOI:10.1177/002199839903300701).
20. Kaliakin, V. N., Dechasakulsom, M. and Leshchinsky, D., “Investigation of the Isochrone Concept for Predicting Relaxation of Geogrids”, *Geosynthetics International*, **7**(2): 79–99 (2000).
21. Huang, H. X., Chajes, M. J., Mertz, D. R., Shenton III, H. W., and Kaliakin, V. N., “Behavior of Open Steel Grid Decks for Bridges”, *Journal of Constructional Steel Research*, **58**(5-8): 819–842 (2002).  
([http://dx.doi.org/10.1016/S0143-974X\(01\)00092-X](http://dx.doi.org/10.1016/S0143-974X(01)00092-X)).
22. Ling, H. I., Yue, D., Kaliakin, V. N. and Themelis, N. J., “An Anisotropic Elasto-Plastic Bounding Surface Model for Cohesive Soils”, *Journal of Engineering Mechanics, ASCE*, **128**(7): 748–758 (2002).  
(10.1061/(ASCE)0733-9399(2002)128:7(748)).
23. Kaliakin, V. N. and Dechasakulsom, M., “Development of a General Time-Dependent Model for Geogrids”, *Geosynthetics International*, **9**(4): 319–344 (2002).
24. Qubain, B. S., Kaliakin, V. N. and Martin, J. P., “A Hyperbolic Constitutive Model for Sand Behaviour with a Variable Bulk Modulus”, *Journal of Geotechnical Engineering, ASCE*, **129**(2): 158–162 (2003).  
(10.1061/(ASCE)1090-0241(2003)129:2(158)).
25. Ling, H. I., Liu, H., Kaliakin, V. N. and Leshchinsky, D., “Analyzing Dynamic Behavior of Geosynthetic-Reinforced Soil Retaining Walls”, *Journal of Engineering Mechanics, ASCE*, **130**(8): 911–920 (2004).  
(10.1061/(ASCE)0733-9399(2004)130:8(911)).
26. Huang, H., Chajes, M. J., Mertz, D. R., Shenton, H. W. and Kaliakin, V. N., “Strength Behavior of Filled Steel Grid Decks for Bridges”, *Bridge Structures*, **3**(2): 105–118 (2007).  
(doi/abs/10.1080/15732480701403872).
27. Huang, H., Kaliakin, V. N., Chajes, M. J., Mertz, D. R. and Shenton, H. W., “Application of Orthotropic Plate Theory to Filled Steel Grid Decks For Bridges”, *ASCE Journal of Bridge Engineering*, **12**(6): 807–810 (2007). ([ascelibrary.org/doi/abs/10.1061/\(ASCE\)1084-0702\(2007\)12:6\(807\)](http://ascelibrary.org/doi/abs/10.1061/(ASCE)1084-0702(2007)12:6(807))).
28. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Numerical Study of the Effect of Geosynthetic Encasement on the Behavior of Granular Columns”, *Geosynthetics International*, **17**(3): 132–143 (2010). (doi:10.1680/gein.2010.17.3.132).
29. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Performance of Quasilinear Elastic Constitutive Models in Simulation of Geosynthetic Encased Columns”, *Computers and Geotechnics*, **38**(8): 998–1007 (2011). (doi:10.1016/j.compgeo.2011.07.007).
30. Kaliakin, V. N., Khabbazian, M. and Meehan, C. L., “Modeling the Behavior of Geosynthetic Encased Columns: Influence of Granular Soil Constitutive Model”, *International Journal of Geomechanics, ASCE*, **12**(4): 357–369 (2012). (doi.org/10.1061/(ASCE)GM.1943-5622.0000084).
31. Anantanasakul, P., Yamamuro, J. A. and Kaliakin, V. N., “Stress-Strain and Strength Characteristics of Silt-Clay Transition Soils”, *Journal of Geotechnical and Geoenvironmental Engineering, ASCE*, **138**(10): 1257–1265 (2012). (DOI:10.1061/(ASCE)13GT.1943-5606.0000692).

32. Jiang, J., Ling, H. I. and Kaliakin, V. N., “An Associative and Non-Associative Anisotropic Bounding Surface Model for Clay”, *Journal of Applied Mechanics, ASME* (Jim Rice Special Edition), **79**(3): (2012). ([doi.org/10.1115/1.4005958](https://doi.org/10.1115/1.4005958)).
33. Jiang, J., Ling, H. I. and Kaliakin, V. N., “Simulation of Natural Pisa Clay Using an Enhanced Anisotropic Elastoplastic Bounding Surface Model” *Journal of Applied Mechanics, ASME*, **80**(2) (2013). (<http://dx.doi.org/10.1115/1.4007964>).
34. Phadikar, J. K., Bogetti, T. A., Kaliakin, V. N., and Karlsson, A. M., “Conical Indentation of a Viscoelastic Sphere”, *Journal of Engineering Materials and Technology, ASME*, **135** (2013).(DOI: [10.1115/1.4024395](https://doi.org/10.1115/1.4024395)).
35. Nieto-Leal, A. and Kaliakin, V. N., “Improved Shape Hardening Function for Bounding Surface Model for Cohesive Soils”, *Journal of Rock Mechanics and Geotechnical Engineering*, **6**(3): 327–337, (2014). (<http://dx.doi.org/10.1016/j.jrmge.2013.12.006>).
36. Khabbazian, M., Meehan, C. L., and Kaliakin, V. N., “Column Supported Embankments with Geosynthetic Encased Columns: Parametric Study”, *Transportation Infrastructure Geotechnology*, **1** (3-4): 301–325 (2014) (<https://doi.org/10.1007/s40515-014-0010-7>).
37. Hung, C., Ling, H. I. and Kaliakin, V. N., “Finite Element Simulation of Deep Excavation Failures”, *Transportation Infrastructure Geotechnology*, **1** (3-4): 326–346 (2014) (<https://doi.org/10.1007/s40515-014-0011-6>).
38. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Column Supported Embankments with Geosynthetic Encased Columns. Validity of the Unit Cell Concept”, *Geotechnical and Geological Engineering*, **33**(3): 425–442 (2015). (<http://dx.doi.org/10.1007/s10706-014-9826-8>)
39. Leal, A. N. and Kaliakin, V. N., “General response observed in cyclically loaded cohesive soils”, *Ciencia e Ingeniería Neogranadina* (in English), **26**(1): 21–39 (2016). (<http://dx.doi.org/10.18359/rcin.1673>).
40. Ling, H. I., Hung, C., and Kaliakin, V. N., “Application of An Enhanced Anisotropic Bounding Surface Model in Simulating Deep Excavations in Clays”, *Journal of Geotechnical and Geoenvironmental Engineering, ASCE*, **142**(11) (2016) ([10.1061/\(ASCE\)GT.1943-5606.0001533](https://doi.org/10.1061/(ASCE)GT.1943-5606.0001533)).
41. Jiang, J., Ling, H. I., Kaliakin, V. N., Zeng, X., and Hung, C., “Evaluation of an anisotropic elastoplastic–viscoplastic bounding surface model for clays”, *Acta Geotechnica*, **12**(2): 335–348 (2017) (<http://dx.doi.org/10.1007/s11440-016-0471-7>).
42. Jiang, J., Ling, H. I., and Kaliakin, V. N., “On a damage law for creep rupture of clays with accumulated inelastic deviatoric strain as a damage measure”, *Mechanics Research Communications*, **83**: 22–26 (2017) (<https://doi.org/10.1016/j.mechrescom.2017.03.003>).
43. Leal, A. N., Kaliakin, V. N., and Mashayekhi, M., “Improved RH rule for cohesive soils and inherent anisotropy”, *International Journal for Numerical and Analytical Methods in Geomechanics*, **42**(3): 469–487 (2018) (<http://onlinelibrary.wiley.com/doi/10.1002/nag.2750/full>).
44. Kadivar, M., Manahiloh, K. N., Kaliakin, V. N., and Shenton, H., “Numerical Investigation of Dynamic Load Amplification in Buried Culverts”, *Transportation Infrastructure Geotechnology*, **5**(1): 24–41 (2018) (<https://doi.org/10.1007/s40515-017-0045-7>).
45. Kaliakin, V. N., Leal, A. N., and Mashayekhi, M., “Modeling the Time- and Temperature-Dependent Response of Cohesive Soils in a Generalized Bounding Surface Framework”, *Transportation Infrastructure Geotechnology*, **5**(3): 250–286 (2018) (DOI: [10.1007/s40515-018-0060-3](https://doi.org/10.1007/s40515-018-0060-3)). **Winner of the 2018 Fumio Tatsuoka Best Paper Award.**
46. Kaliakin, V. and Nieto-Leal, A., “Simulating the Behavior of Soft Cohesive Soils Using The Generalized Bounding Surface Model”, *International Journal for Computational Civil and Structural Engineering*, **15**(3): 55–76 (2019) (<https://doi.org/10.22337/2587-9618-2019-15-3-55-76>).

47. Kaliakin, V. N., “Anisotropic Elasticity for Soils: A Synthesis of Some Key Issues”, *Bulletin of L.N. Gumilyov Eurasian National University, Technical Sciences and Technology Series*, **127**(2): 49–63 (2019) (<https://doi.org/10.32523/2616-7263-2019-127-2-49-63>).
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36. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Geosynthetic Supported Base Reinforcement over Deep Foundations: A Numerical Parametric Study of Encased Column Groups”, report submitted to the *Geosynthetic Institute* (GSI), (2011).
37. Nieto-Leal, A. and Kaliakin, V. N., “On Soil Yielding and Suitable Choices for Yield and Bounding Surfaces,” Report, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE (2013) ([https://research.ce.udel.edu/kaliakin/CEE\\_Report\\_surfaces.pdf](https://research.ce.udel.edu/kaliakin/CEE_Report_surfaces.pdf)).
38. Nieto-Leal, A. and Kaliakin, V. N., “Behavior of Cohesive Soils Subjected to Cyclic Loading: An Extensive Review of Pertinent Literature”, Report, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE (2013) ([https://research.ce.udel.edu/kaliakin/CEE\\_Report\\_cyclic\\_13.pdf](https://research.ce.udel.edu/kaliakin/CEE_Report_cyclic_13.pdf)).
39. Nieto-Leal, A. and Kaliakin, V. N., “A Review of Rotational Hardening Rules Suitable for Modeling of Cohesive Soils,” Report, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE (2014) ([https://research.ce.udel.edu/kaliakin/CEE\\_Report\\_RH\\_14.pdf](https://research.ce.udel.edu/kaliakin/CEE_Report_RH_14.pdf)).
40. Kaliakin, V. N. and Nieto-Leal, A., “Details Pertaining to the Generalized Bounding Surface Model for Cohesive Soils: Revised & Expanded”, Department of Civil and Environmental Engineering, University of Delaware (2017) ([https://research.ce.udel.edu/kaliakin/GBSM\\_main.pdf](https://research.ce.udel.edu/kaliakin/GBSM_main.pdf)).
41. Kaliakin, V. N., “APES<sup>+</sup>, (Analysis Program for Earth Structures) Computer Program Documentation – User Manual, Department of Civil and Environmental Engineering, University of Delaware (2022) ([https://research.ce.udel.edu/kaliakin/apes\\_doc.pdf](https://research.ce.udel.edu/kaliakin/apes_doc.pdf)).
42. Kaliakin, V. N., “Detailed Assessment of Mixed  $\mathbf{u-p}$  Finite Elements with Discontinuous Pressure Approximations: Application to Problems in Structural Mechanics: Updated Results”, Department of Civil and Environmental Engineering, University of Delaware (2022) ([https://research.ce.udel.edu/kaliakin/CEE\\_Report\\_up\\_structural\\_2022.pdf](https://research.ce.udel.edu/kaliakin/CEE_Report_up_structural_2022.pdf)).
43. Kaliakin, V. N., “Formulation, Stability Implementation and Preliminary Assessment of Mixed  $\mathbf{u-p}$  Elements with Continuous Pressure Approximations”, Department of Civil and Environmental Engineering, University of Delaware (2023) ([https://research.ce.udel.edu/kaliakin/report\\_cont\\_pressure\\_0\\_2023\\_main.pdf](https://research.ce.udel.edu/kaliakin/report_cont_pressure_0_2023_main.pdf)).
44. Kaliakin, V. N., “Assessment of Mixed  $\mathbf{u-p}$  Finite Elements with Continuous Pressure Approximations: Application to Generalized Biot Formulation for Porous Geomaterials”, Department of Civil and Environmental Engineering, University of Delaware (2023) ([https://research.ce.udel.edu/kaliakin/report\\_cont\\_pressure\\_1\\_2023.pdf](https://research.ce.udel.edu/kaliakin/report_cont_pressure_1_2023.pdf)).

## Presentations

### *Invited*

1. Kaliakin, V. N., “Practical Application of a Constitutive Model for Cohesive Soils”, Department of Civil Engineering, New Jersey Institute of Technology, Newark, NJ, May 1990.
2. Kaliakin, V. N., “Some Numerical Simulations of Earth Structures”, Department of Ocean Engineering, University of Rhode Island, Kingston, RI, October 1992.
3. Kaliakin, V. N., “Modeling the Time Dependent Behavior of Cohesive Soils: An Overview,” TRB Committee A2K05 – Modelling Techniques in Geomechanics, January 1994.
4. Kaliakin, V. N., “Modeling Interfaces in Geologic Media: An Overview,” TRB Committee A2K05 – Modelling Techniques in Geomechanics, January 1994.
5. Kaliakin, V. N., “Composite Soil Structures: What Makes Them Safe?”, *University of Delaware Research Foundation Meeting*, Newark, DE, January 1994.

6. Kaliakin, V. N., “The Bounding Surface Model for Cohesive Soils and its Application to Marine Soils”, Marine Sediment Geoacoustical and Geotechnical Constitutive Modeling Workshop, University of Rhode Island, Kingston, RI, November 1995.
7. Kaliakin, V. N., “An Overview of Foundation Engineering” and “Overview of Bounding Surface Model for Clay with Applications”, Department of Urban and Civil Engineering, Ibaraki University, Hitachi, Japan, April 1996.
8. Kaliakin, V. N., “The Elastoplastic-Viscoplastic Bounding Surface Model for Clay: An Overview”, Department of Civil Engineering, Fukuoka University, Fukuoka, Japan, April 1996.
9. Kaliakin, V. N., “Discussion of the Elastoplastic-Viscoplastic Bounding Surface Model for Clay: Application to Marine Soils”, Department of Civil Engineering, Yamaguchi University, Ube, Japan, April 1996.
10. Kaliakin, V. N., “Constitutive Models in Deformation and Settlement Analysis” and “Rehabilitation of the Civil Infrastructure Using Advanced Composite Materials: Research at the University of Delaware”, Department of Urban and Civil Engineering, Ibaraki University, Hitachi, Japan, October 1997.
11. Kaliakin, V. N., “Remarks on the Modeling of Time-Dependent Behavior of Geosynthetics”, IGS Workshop, University of Tokyo, Japan, October 1997.
12. Kaliakin, V. N., “Numerical Simulation of Reinforced Wall with Cohesive Backfill and Polymeric Inclusions”, McMaster University, Hamilton, Canada, April 2002.
13. Kaliakin, V. N., “Modeling the Time-Dependent Behavior of Clays in a Coupled Elastoplastic-Viscoplastic Framework”, Mini-Geomechanics Symposium, University of Delaware, March 2003.
14. Kaliakin, V. N., “Numerical Simulation of Reinforced Wall with Cohesive Backfill and Polymeric Inclusions”, Johns Hopkins University, Baltimore, MD, April 2003.
15. Kaliakin, V. N., “An Assessment of the Macroscopic Quantification of Anisotropy in Cohesive Soils”, First Japan-U.S. Workshop on Testing, Modeling and Simulation in Geomechanics, Dedham MA, June 2003.
16. Kaliakin, V. N., “The Bounding Surface Model for Cohesive Soils and its Application to Selected Boundary Value Problems”, Department of Civil and Environmental Engineering, University of Cincinnati, May 2004.
17. Kaliakin, V. N., “The Bounding Surface Model for Cohesive Soils and its Application to Two Boundary Value Problems”, Geo-Engineering Centre, Queens University, Kingston, Ontario, November 2004.
18. Kaliakin, V. N., “Reinforced Soil Walls with Low Quality Backfill: Numerical Simulation and Implications on Design”, Louisiana State University, February 2005.
19. Kaliakin, V. N., “Reinforced Soil Walls with Low Quality Backfill: Material Characteristics, Numerical Simulation and Implications on Design”, George Washington University, April 2005.
20. Kaliakin, V. N., “Nonlinear Modeling of Geotechnical Problems: Bridging the Chasm Between Theory and Practice”, Workshop on Nonlinear Modeling of Geotechnical Problems: From Theory to Practice, Johns Hopkins University, Baltimore, MD, November 2005.
21. Kaliakin, V. N., “Accounting for Micromechanical Aspects in Simulating the Time-Dependent, Anisotropic Behavior of Cohesive Soils” (**keynote lecture**), Plasticity 2006: The Twelfth International Symposium on Plasticity and Its Current Applications, Halifax, Nova Scotia, July 2006.
22. Kaliakin, V. N., “Computational Geomechanics Applied to Two Boundary Value Problems Involving Cohesive Soils”, University of Texas at San Antonio, November 2008.

23. Kaliakin, V. N., “Comments on Mixed Elements with Continuous Pressure Approximations as Applied to Problems in Geomechanics”, University of Oklahoma, October 2009.
24. Kaliakin, V. N., “Computational Geomechanics – Understanding the Limitations”, University of Oklahoma, October 2009.
25. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Numerical Study of Effect of Geosynthetic Encasement on the Behavior of Granular Columns”, Delaware Valley Geo-Institute Meeting, Villanova University, Villanova, PA, February 2010 (*presentation given by graduate student*).
26. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Geosynthetic-Reinforced Pile-Supported Embankments with Emphasis on Geosynthetic Encased Columns,” Huesker, Inc., Charlotte, NC, September 2010 (*presentation given by graduate student*).
27. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., “Geosynthetic-Reinforced Pile-Supported Embankments with Emphasis on Geosynthetic Encased Columns,” GeoPier Foundation Company, Charlotte, NC, September 2010 (*presentation given by graduate student*).
28. Kaliakin, V. N., “Investigation of Critical States and Failure in True Triaxial Tests of Clay,” *Second International Symposium on Constitutive Modeling of Geomaterials: Advances & New Applications*, Beijing, China, October 2012.
29. Kaliakin, V. N., Nieto Leal, A. and Mashayekhi, M., “Constitutive Models for Cohesive Soils - Synthesis & Expansion” (**keynote presentation**), *First Kazakhstan-USA Geotechnical Engineering Workshop*, Astana & Almaty, Kazakhstan, July 2015 (<http://www.enu.kz/en/info/news/37829/>).
30. Kaliakin, V. N., “The Bounding Surface Model for Cohesive Soils and its Application to Selected Boundary Value Problems,” *emphKazakhstan National Technical University*, Almaty, Kazakhstan, July 2015.
31. Kaliakin, V. N., “Numerical Simulation of Two Geotechnical Boundary Value Problems,” *L. N. Gumilyov Eurasian National University*, Astana, Kazakhstan, October 2015.
32. Kaliakin, V. N. and Mashayekhi, M., “Geomechanical Challenges Associated with Modeling and Analyzing Renewable Energy Facilities”, Roundtable discussion on “Innovation and Challenges in the Construction of the Ground and Foundations of Renewable Energy Facilities”, *World Scientific and Engineering Congress (WSEC-2017)*, “Energy of the future: innovative scenarios and methods of their implementation”, World EXPO 2017, Astana, Kazakhstan, June 2017 (<http://www.enu.kz/en/info/news/49338/>).
33. Kaliakin, V. N., Khabbazian, M. and Mashayekhi, M., “Some Robust Geosynthetic Methodologies for use in the Geotechnical Infrastructure”, *International Geotechnical Seminar of TC 305* (“Geotechnical Infrastructure of Megacities and New Capitals”), *L. N. Gumilyov Eurasian National University*, Astana, Kazakhstan, June 2017 (<http://www.enu.kz/ru/info/novosti-enu/49283/>).
34. Kaliakin, V. N. and Mashayekhi, M., “Geosynthetic Reinforced Systems and Their Finite Element Simulation”, *Technology Camp*, Facultad de Ingeniería, Universidad Militar Nueva Granada, Cajicá, Colombia, October 2017.
35. Kaliakin, V. N. and Mashayekhi, M., “Numerical Simulation of Geosynthetic Reinforced Soil Systems”, Facultad de Ingeniería, Universidad Militar Nueva Granada, Cajicá, Colombia, October 2017.
36. Kaliakin, V. N., “Modeling the Time- and Temperature-Dependent Response of Cohesive Soils in a Generalized Bounding Surface Framework”, **Burmister Lecture**, University of Columbia, Department of Civil Engineering and Engineering Mechanics, March 2018.
37. Kaliakin, V. N., “Behavior and Characterization of Silt-Clay Transition Soils and the Possible Influence on Design Standards”, U.S.A. - Russia Geotechnical Symposium, St. Petersburg, Russia, May 2018.

38. Kaliakin, V. N., “Overview of the University of Delaware”, ISSMGE TC305 (“Geotechnical infrastructure for Megacities and New Capitals”) Roundtable discussion, *L. N. Gumilyov Eurasian National University*, Astana, Kazakhstan, October 2018.
39. Kaliakin, V. N., “Challenges in Engineering Education and Research on a Global Scale for the 21st Century”, International Scientific and Practical Conference “Higher School: Traditions and Innovations,” *Kazakh Humanitarian-Law Innovation University*, Semey, Kazakhstan, November 2018 (presentation given in Russian).
40. Kaliakin, V. N., “Geosynthetic Reinforced Soil Systems: Understanding their Behavior through Numerical Modeling” (**keynote lecture**), *Shákárim State University*, Semey, Kazakhstan, November 2018 (presentation given in Russian).
41. Kaliakin, V. N., Kadivar, M., and Manahiloh, K. N., “Numerical Investigation of Culverts to Assess Suitability of Current Design Methods”, *Kazakh Leading Academy of Architecture and Civil Engineering*, Almaty, Kazakhstan, December 2018 (presentation given in Russian).
42. Kaliakin, V. N., “Overview of Geosynthetics and their Applications”, *Kazakh Leading Academy of Architecture and Civil Engineering*, Almaty, Kazakhstan, December 2018 (presentation given in Russian).
43. Kaliakin, V. N., “Geosynthetic Reinforced Soil Systems: Understanding their Behavior through Numerical Modeling and Analysis”, *Kazakh Leading Academy of Architecture and Civil Engineering*, Almaty, Kazakhstan, December 2018 (presentation given in Russian).
44. Kaliakin, V. N., “Some Observations on Modeling the Behavior of Soft Cohesive Soils”, *Geotechnics Fundamentals and Applications in Construction: New Materials, Structures, Technologies and Calculations (GFAC 2019)*, St. Petersburg, Russia 2019 (presentation given in Russian).
45. Kaliakin, V. N., “Some Observations Regarding International Online Instruction During a Global Pandemic”, International Scientific-Practical Conference *Distance Learning: New Challenges on a Global Scale*, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan, September 2020 (<https://www.enu.kz/en/info/news/60771/>)
46. Kaliakin, V. N., “Some Recent Applications of Computational Mechanics to Problems Involving Geosynthetics” (**keynote lecture**), *Historical and Modern Applications in Geotechnical Engineering*, Civil Engineering Department, University of Baghdad, Iraq, October 2020.
47. Kaliakin, V. N., “Improved Representation of Elastic Response in Generalized Bounding Surface Model for Cohesive Soils”, *Engineering Surveyor’s Day*, National Research Moscow State University of Civil Engineering (NRU MGSU), Moscow, Russia, October 2020 (<https://rusufo.ru/>).
48. Kaliakin, V. N., “Load Capacity of Geosynthetic Encased Soil Columns Bearing on a Compressible Soil Layer”, *Engineering Surveyor’s Day*, National Research Moscow State University of Civil Engineering (NRU MGSU), Moscow, Russia, October 2021.
49. Kaliakin, V. N., “Simulation of Column Supported Embankments Underlain by Rigid and Compressible Soil Layers” (**keynote lecture**), Third International Conference on Geotechnical Engineering, Civil Engineering Department, University of Baghdad, Iraq 2022 (<https://enu.kz/en/info/news/66564/>). Related article ([https://www.issmge.org/filemanager/article/1081/ISSMGE\\_BULLETIN\\_2022\\_OCT\\_FINAL.pdf](https://www.issmge.org/filemanager/article/1081/ISSMGE_BULLETIN_2022_OCT_FINAL.pdf)).
50. Kaliakin, V. N., “Challenges in Engineering Education and Research on a Global Scale for the 21st Century”, lecture presented to faculty of *Shákárim State University*, Semey, Kazakhstan, October 2022 (presentation given in Russian).
51. Kaliakin, V. N., “Scientific Activity in the Field of Geotechnics Focusing on the Experience of the University of Delaware, USA”, *Shákárim State University*, Semey, Kazakhstan, October 2022. Related Instagram post (in Russian) (<https://www.instagram.com/p/CkBbYXnKj7j/?igshid=MDJmNzVkJmY%3D>) (presentation given in Russian).

52. Kaliakin, V. N., “The Role of Geosynthetic Encased Stone Columns in Developing the Civil Infrastructure”, International Scientific and Practical Symposium “Future Smart Megacities”, *25th Anniversary of Astana: Astana - The City of the Future*, 2023.
53. Kaliakin, V. N., “Behavior and modeling of silt-clay transition soils” (**Thematic Lecture**), *Smart Geotechnics for Smart Societies*, 17th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Astana, Kazakhstan, August 2023.
54. Kaliakin, V. N., “Assessment of Model Predictive Capabilities for True Triaxial Stress States” (**Keynote Lecture**), *International Scientific Conference on Soil Mechanics and Geotechnics in High-Rise and Underground Construction named after Z.G. Ter-Martirosyan*, Moscow, Russia (2024). Related article (<https://enu.kz/en/news/2911>).
55. Kaliakin, V. N., “Current State of  $\mathbf{u} - p$  Mixed Elements Used to Simulate the Response of Saturated Geomaterials”, **First Alexander B. Fadeev Lecture**, GFAC 2024 Conference, St. Petersburg State Architecture and Civil Engineering University, Russia (2024).

### *At Conferences and Meetings*

1. Kaliakin, V. N., “An Elastoplastic-Viscoplastic Bounding Surface Model for Isotropic Cohesive Soils,” *International Conference on Rheology and Soil Mechanics*, Coventry, UK (1988).
2. Kaliakin, V. N. and Perano, K. J., “INTERP - A Subroutine System for Lexical Analysis,” *8th Biennial CUBE Symposium*, Albuquerque, New Mexico (1988).
3. Kaliakin, V. N., “DIMPL - A Tool for Processing Numeric Data,” *8th Biennial CUBE Symposium*, Albuquerque, New Mexico (1988).
4. Kaliakin, V. N., “Hypermedia and its Application to Geotechnical Databases,” *ASCE Geotechnical Congress*, Boulder, CO (1991).
5. Kaliakin, V. N., “Generalized Isoparametric Coordinate Determination Scheme for Finite Element Mesh Generation,” *9th ASCE Engineering Mechanics Specialty Conference*, College Station, TX (1992).
6. Kaliakin, V. N., “Towards a Robust Methodology for Thermo-Mechanical Analysis of Porous Media,” *Joint Meeting of ASCE/ASME/SES*, Charlottesville, VA (1993).
7. Kaliakin, V. N., “Advances in the Numerical Simulation of Thermo-Mechanical Behavior of Cohesive Soils,” *Second U. S. National Congress on Computational Mechanics*, Washington, DC (1993).
8. Kaliakin, V. N., “Parameter Estimation for Elastoplastic-Viscoplastic Bounding Surface Model for Cohesive Soils,” *ASME Winter Annual Meeting*, New Orleans, LA. (1993).
9. Kaliakin, V. N., “Application of Improved Zero Thickness Interface Element to Geosynthetically Reinforced Soil Structures,” *Eighth International Conference of the Association for Computer Methods and Advances in Geomechanics*, Morgantown, West Virginia (1994).
10. Kaliakin, V. N., “Computational Issues Associated with Hyper-Anisotropic Media,” *10th ASCE Engineering Mechanics Specialty Conference*, Boulder, CO (1995).
11. Kaliakin, V. N., “Formulation and Implementation of Improved Zero-Thickness Interface Elements,” *11th ASCE Engineering Mechanics Specialty Conference*, Ft. Lauderdale, FL (1996).
12. Kaliakin, V. N., “Generalized Plane Strain Finite Element Analysis: Geomechanical Applications,” *11th ASCE Engineering Mechanics Specialty Conference*, Ft. Lauderdale, FL (1996).
13. Kaliakin, V. N., “Microscopic Aspects of Thermo-Mechanical Behavior of Cohesive Soils and Their Macroscopic Representation,” *Joint ASME/ASCE/SES Summer Meeting*, Northwestern University, Evanston, Illinois (1997).

14. Kaliakin, V. N., "Microstructural Considerations and Validity of the Correspondence Principle for Cohesive Soils," *13th ASCE Engineering Mechanics Conference*, The Johns Hopkins University, Baltimore, MD (1999).
15. Kaliakin, V. N., "Investigation of Infinite Elements for Use in Simulating Footing Settlements," *14th ASCE Engineering Mechanics Conference*, University of Texas, Austin (2000).
16. Kaliakin, V. N., "Footing Settlement Simulations: Modeling Considerations," *14th ASCE Engineering Mechanics Conference*, University of Texas, Austin (2000).
17. Kaliakin, V. N., "Interaction of Adjacent Strip and Spread Footings on Sand," *14th ASCE Engineering Mechanics Conference*, University of Texas, Austin (2000).
18. Kaliakin, V. N., "Detailed Modeling of Facing for Reinforced Soil Walls," *15th ASCE Engineering Mechanics Conference*, Columbia University, New York City (2002).
19. Kaliakin, V. N., "Assessment of 3-D Predictive Capabilities of Bounding Surface Model for Cohesive Soils," *14th U. S. National Congress on Theoretical and Applied Mechanics*, Blacksburg, VA (2002).
20. Kaliakin, V. N., "Accounting for Micromechanical Aspects of Anisotropy and Time-Dependence in Cohesive Soils," *Plasticity '03: The Tenth International Symposium on Plasticity and Its Current Applications*, Québec City, Québec (2003).
21. Kaliakin, V. N., "Simulating Time-Dependent Behavior of Clay Using an Anisotropic Elastoplastic-Viscoplastic Bounding Surface Model," *16th ASCE Engineering Mechanics Conference*, University of Washington, Seattle (2003).
22. Kaliakin, V. N., "Numerical Implementation and Integration of Bounding Surface Models for Cohesive Soils," *Third Biot Conference on Poromechanics*, Norman, Oklahoma, (2005).
23. Kaliakin, V. N., "Issues in Simulating the Anisotropic, Time Dependent Behavior of Cohesive Soils," *McMat Mechanics and Materials Conference*, Baton Rouge, LA (2005).
24. Kaliakin, V. N., "Assessment of Predictive Capabilities of Bounding Surface Model for Cohesive Soils under Complex Stress Paths," *McMat Mechanics and Materials Conference*, Baton Rouge, LA, (2005).
25. Kaliakin, V. N., "Mathematical Modeling of Polymeric Soil Reinforcement: Current Practice and Future Trends," *McMat Mechanics and Materials Conference*, Baton Rouge, LA (2005).
26. Kaliakin, V. N., "Generalized Bounding Surface Framework for Modeling the Anisotropic, Time Dependent Behavior of Cohesive Soils," *15th U.S. National Congress on Theoretical and Applied Mechanics*, Boulder, CO (2006).
27. Kaliakin, V. N., "Issues Associated With Mathematical Modeling of Hyper-Anisotropic Composite Materials," *15th U.S. National Congress on Theoretical and Applied Mechanics*, Boulder, CO (2006).
28. Kaliakin, V. N., "Assessment of Mixed Elements with Discontinuous Pressure Approximations as Applied To Cohesive Soils," *Proceedings of the 18th ASCE Engineering Mechanics Conference*, Virginia Tech, Blacksburg (2007).
29. Kaliakin, V. N., "Assessment of Model Predictive Capabilities for True Triaxial Shearing of Clay," *Development of Urban Areas and Geotechnical Engineering, Proceedings of the International Geotechnical Conference*, St. Petersburg, Russia, (2008).
30. Khabbazian, M., Kaliakin, V. N. and Meehan, C. L., "3D Numerical Analyses of Geosynthetic Encased Stone Columns," *International Foundation Congress & Equipment Expo '09, ASCE Geo-Institute 2009 GeoCongress*, Orlando, FL (2009) (presentation given by graduate student).
31. Kaliakin, V. N., "Investigation of Mixed Elements with Continuous Pressure Approximations as Applied to Problems in Geomechanics," *Fourth Biot Conference on Poromechanics*, Columbia University, New York City, (2009).

32. Khabbazian, M., Meehan, C. L. and Kaliakin, V. N., "Numerical Study of Effect of Encasement on Stone Column Performance," *GeoFlorida 2010: Advances in Analysis, Modeling & Design, ASCE Geo-Institute 2010 GeoCongress*, West Palm Beach, FL (2010) (presentation given by graduate student).
33. Kaliakin, V. N., "Performance of Enhanced Mixed Elements with Continuous Pressure Approximations as Applied to Porous Geologic Materials," *16th US National Congress of Theoretical and Applied Mechanics*, Pennsylvania State University, University Park, PA (2010).
34. Khabbazian, M., Meehan, C. L., and Kaliakin, V. N., "Influence of Granular Soil Constitutive Model when Simulating the Behavior of Geosynthetic Encased Columns," *Geo-Frontiers 2011: Advances in Geotechnical Engineering, ASCE Geo-Institute 2011 GeoCongress*, Dallas, TX (2011) (presentation given by graduate student).
35. Anantanasakul, P. and Kaliakin, V. N. "Simulations of 3-D Drained Behavior of Normally Consolidated Clay Using Elastoplastic Models," *ASCE GeoCongress 2012*, Oakland, CA (2012) (presentation given by graduate student).
36. Khabbazian, M., Kaliakin, V. N., and Meehan, C. L., "Numerical Simulation of Column Supported Embankments with Geosynthetic Encased Columns: Influence of Soft Soil Constitutive Model," *ASCE GeoCongress 2012*, Oakland, CA (2012) (presentation given by graduate student).
37. Kaliakin, V. N. and Nieto-Leal, A. "Towards a Generalized Bounding Surface Model for Cohesive Soils," *5th Biot Conference on Poromechanics (BIOT-5)*, Vienna, Austria, (2013) (presentation given by graduate student).
38. Kaliakin, V. N., Talebi, M. and Nieto-Leal, A., "Preliminary Assessment of Higher-Order  $u$ - $p$  Elements for Poromechanics Applications," *5th Biot Conference on Poromechanics (BIOT-5)*, Vienna, Austria, (2013) (presentation given by graduate student).
39. Nieto-Leal, A., "Predicting Soil Response Under Earthquake Loading," University of Delaware Graduate Research Forum, Newark, DE (2015) (presentation given by graduate student).
40. Mashayekhi, M., "Implications of Numerical Modeling of Geosynthetic Reinforced Soil Structures," Transportation Research Board 96th Annual Meeting, (2017) (presentation given by graduate student).
41. Mashayekhi, M., Kaliakin, V. N., Meehan, C. L., Nicks, J. E., and Adams, M. T., "Numerical Modeling of Performance Tests for Geosynthetic Reinforced Structures," Delaware Valley Geo-Institute Meeting, Villanova University, Villanova, PA, March 2017 (presentation given by graduate student).
42. Kaliakin, V. N., "Overview of UD Geotechnical & Geomechanics Program," Academic Meeting between the Instituto de Ingeniería of the Universidad Nacional Autónoma de México and the Department of Civil & Environmental Engineering of the University of Delaware, May 2017.
43. Kadivar, M., Manahiloh, K. N., Kaliakin, V. N. and Shenton, H., "Assessment of Dynamic Load Allowance for Buried Culverts", Proceedings of IFCEE, Orlando, FL (2018) (presentation given by graduate student).
44. Al Saadi, A. N., Meehan, C. L., and Kaliakin, V. N., "Numerical Study of the Behavior of a Fully Encased Stone Column Bearing on a Non-Rigid Layer", *Geo-Congress 2019*, Philadelphia, PA (2019) (presentation given by graduate student).
45. Kadivar, M., Manahiloh, K. N., and Kaliakin, V. N., "Characterizing the Unsaturated Strength Behavior of Native Transition Soil Used as Backfill in the Construction of US 301, Section 3", *Geo-Congress 2019*, Philadelphia, PA (2019) (presentation given by graduate student).
46. Kaliakin, V. N., Zhussupbekov, A., and Ling, H. I., "Report to the ASCE Geo-Institute International Activities Committee on the Second GI-KGS Joint Geotechnical Workshop", *Geo-Congress 2019*, Philadelphia, PA (2019) .

47. Kaliakin, V. N. and Mashayekhi, M., “Extending the Generalized Bounding Surface Model for Saturated Cohesive Soils to Non-Isothermal Conditions”, *Engineering Mechanics Institute 2019*, Pasadena, CA (2019).
48. Al Saadi, A. N., Meehan, C. L., and Kaliakin, V. N., “Numerical Study of the Load Transfer Mechanism for Encased Stone Columns of Varying Lengths Bearing on Rigid and Non-Rigid Layers”, *IFCEE 2021*, Dallas, TX (2021) (presentation given by graduate student).
49. Kaliakin, V. N., “Insight into the Behavior of Geosynthetic Reinforced Soil Systems”, *5th Central Asian Conference on Soil Mechanics and Geotechnical Engineering*, Samarkand, Uzbekistan (2022).
50. Kaliakin, V. N. and Botchway, D., “Preliminary assessment of non-conforming  $u$ - $p$  elements for saturated geomaterials”, *Smart Geotechnics for Smart Societies*, 17th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Astana, Kazakhstan (2023).
51. Kaliakin, V. N., “An assessment of transversely isotropic elastic constitutive models for geomaterials”, *Smart Geotechnics for Smart Societies*, 17th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Astana, Kazakhstan (2023).
52. Kaliakin, V. N., “Some Preliminary Finite Element Analyses of Laterally Loaded Piles”, International Kazakh-American Scientific and Practical Mini-Symposium on Technical Committee TC305 *Geotechnical Infrastructure of Megacities and New Capitals*, Eurasian National University, Astana, Kazakhstan (2024) (presentation given in Russian) (<https://enu.kz/en/news/2483>).
53. Kaliakin, V. N., and Zhussupbekov, A., “Investigation of Small Strain Transversely Isotropic Hypoelastic Models for Soils”, *Second Eurasian Innovation Forum “Current Problems of Development and Security of Large Cities”*, Almaty, Kazakhstan (2024) (presentation given in Russian).
54. Zhussupbekov, A., Omarov, A., and Kaliakin, V. N., and Drozdova, I. V., “Experience in testing and numerical analysis of the interaction of piles with the soil foundation of the Blue Mosque in Astana (in Russian)”, *The Fourth Bentancourt Conference*, St. Petersburg, Russia (2024) (presentation given by colleague, in Russian) (<https://enu.kz/en/news/2549>).

#### *Posters Presented by Graduate Students*

1. Kaliakin, V. N., Meehan, C. L., Attoh-Okine, N. O. and Imhoff, P. T., “Long-Term Performance Monitoring of a Recycled Tire Embankment in Wilmington, Delaware,” *Delaware Center for Transportation 2010 Research Showcase*, Dover, DE (2010).
2. Mashayekhi, M., Kaliakin, V. N. and Meehan, C. L., “Energy Geo-Structures: Challenges & Opportunities,” Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2014).
3. Nieto-Leal, A., Kaliakin, V. N. and Meehan, C. L., “Cyclic Response of Cohesive Soils and its Numerical Simulation, a Preliminary Study,” Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2014).
4. Nieto-Leal, A. and Kaliakin, V. N., “The Importance of Simulating Cyclic Response of Cohesive Soils,” Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2015).
5. Kadivar, M., Manahiloh, K. N., and Kaliakin, V. N., “Finite element analysis of buried Box Culverts”, Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2017).
6. Kadivar, M., Wells, A., Bugher, C., Manahiloh, K. N., Shenton, H. W. and Kaliakin, V., “2-D FEM Parametric Investigation of DAF in Buried Culverts”, Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2018).
7. Kadivar, M., Manahiloh, K. N., Kaliakin, V. N., and Shenton, H. W., “Finite element analysis of buried Box Culvert”, Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2018).

8. Kadivar, M., Manahiloh, K. N., and Kaliakin, V. N., "Triaxial Testing on Unsaturated Transition Silty-Sand", Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2018).
9. Bugher, C., Manahiloh, K. N., Kaliakin, V. N., and Shenton, H. W., "3-D FEM Using Infinite Elements", Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2018).
10. Bugher, C., Manahiloh, K. N., Kaliakin, V. N., and Shenton, H. W., "3-D FEM Using Infinite Elements", Engineering Advisory Council Meeting, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE (2018).
11. Bugher, C., Manahiloh, K. N., Kaliakin, V. N., and Shenton, H. W., "Modeling of the load-asphalt-soil-culvert system with 3-D FEM and Infinite Elements", 8th Annual Graduate Research Forum, University of Delaware, Newark, DE (2018).
12. Kadivar, M., Wells, A., Bugher, C., Manahiloh, K. N., Shenton, H. W., and Kaliakin, V. N., "Finite Element Analysis of Buried Box Culverts", DelDOT Research Showcase, Delaware Department of Transportation (DelDOT), Dover, DE (2018).
13. Kadivar, M., Manahiloh, K. N., and Kaliakin, V. N., "A Bounding Surface Plasticity Model for Unsaturated Granular Soils", Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2019).
14. Al Saadi, A. N. Meehan, C. L., and Kaliakin, V. N., "Numerical Study of the Effect of Soft Soil Type and the Stiffness of the Encasement for a Fully Encased Stone Column Sitting on a Non-Rigid-Layer", Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2019).
15. Bugher, C. L., Manahiloh, K. N., Kaliakin, V., and Shenton, H. W., "Three-Dimensional Finite Element Analysis of Reinforced Concrete Box Culverts Using Infinite Elements", Geo-Congress 2019, Philadelphia, PA (2019).
16. Kadivar, M., Manahiloh, K. N., and Kaliakin, V., "A bounding surface based plasticity model for unsaturated granular soils", Geo-Congress 2019, Philadelphia, PA (2019).
17. Mashayekhi, M., Kaliakin, V. N., Meehan, C. L., Adams, M. T., and Nicks, J. E., "Numerical Modeling of Structural Backfills for Transportation Infrastructure", Geo-Congress 2019, Philadelphia, PA (2019).
18. Manahiloh, K., Kaliakin, V., and Verdi, K., "Evaluation of Biochar as a soil improvement additive to mid-Atlantic expansive clay," Geo-Congress 2024, Vancouver, BC (2024).
19. Jebeli, M., Kaliakin, V. N., and Meehan, C. L. "Investigating the lateral movements of piles by using finite element analysis and analytical solutions", Delaware Valley Geo-Institute (DVGI) Student Meeting, Villanova University, PA (2024).

### *Short Course Presenter*

1. "Time Dependent Bounding Surface Model for Isotropic Cohesive Soils," Short Course, *Second International Conference on Constitutive Laws for Engineering Materials*, Tucson, AZ (1987).
2. "Numerical Methods in Geomechanics Calculation," Short Course given at the Institute of Architecture and Construction, *Kazakhstan National Technical University*, Almaty, Kazakhstan, July 13 to 28, 2015.
3. "Intermediate Engineering Mechanics," Short Course given to Master's students at the Institute of Architecture and Construction, *L. N. Gumilyov Eurasian National University*, Astana, Kazakhstan, October 6 to 17, 2015.

## Professional Activities

### Membership in Professional Societies

American Academy of Mechanics (AAM).  
 American Society of Civil Engineers (ASCE).  
 Engineering Mechanics Institute (ASCE) – Charter Member.  
 Geo-Institute (ASCE).  
 International Association for Computational Mechanics (IACM).  
 International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE).  
 Kazakhstan Geotechnical Society (KGS).

### Membership in Professional Committees

*Member*, American Society of Civil Engineers Soil Properties and Modeling Committee (1996 to present).  
*Member*, American Society of Civil Engineers Committee on Aerospace Structures and Materials (1993 to 1998).  
*Member*, American Society of Civil Engineers Engineering Mechanics Institute (EMI) Modeling Inelasticity and Multiscale Behavior (MIMB) Committee (2010 to present).  
*Member & Chairman*, American Society of Civil Engineers Committee on Inelastic Behavior (1992 to 1997; 1999 to 2006; Chairman 2001 to 2002; Vice-Chairman 2000 and 2003).  
*Member*, American Society of Civil Engineers Poromechanics Committee (2002 to 2010; 2011 to present).  
*Member*, Transportation Research Board Committee on Modelling Techniques in Geomechanics (TRB A2K05) (1993 to 2003; recording secretary 1994, 1995).  
*Member*, TC214 Committee on Foundation Engineering for Difficult Soft Soil Conditions (2021 to present).

### Professional Involvement in Conjunction with Conference Sessions & Symposia

*Session Co-Organizer*, “Characterization of Geomaterials,” 11th ASCE Engineering Mechanics Conference, Ft. Lauderdale, FL (1996).  
*Session Co-Organizer*, “Measuring and Modeling Time-Dependent Cohesive Soil Behavior,” ASCE Annual Convention, Washington, DC (1996).  
*Session Co-Organizer*, “Modeling and Applications of Soil Plasticity,” Joint ASME/ASCE/SES Summer Meeting, Evanston, IL (1997).  
*Session Co-Organizer*, Five-Session Symposium on Experimental, Analytical and Computational Characterization of the Mechanical Behavior of Geomaterials, 14th ASCE Engineering Mechanics Conference, Austin, TX (2000).  
*Session Co-Organizer*, Four-Session Frank L. DiMaggio Symposium on Constitutive Modeling of Geomaterials, 15th ASCE Engineering Mechanics Conference, New York City, NY (2002).  
*Session Co-Organizer*, Two-Session Symposium on Computational Inelasticity, 15th ASCE Engineering Mechanics Conference, New York City, NY (2002).  
*Session Co-Organizer*, Three-Session Symposium on Inelastic Behavior of Saturated and Partially Saturated Porous Media, 16th ASCE Engineering Mechanics Conference, Seattle, WA (2003).  
*Session Co-Organizer*, Two-Session Tribute to Kirk Valanis, 16th ASCE Engineering Mechanics Conference, Seattle, WA (2003).  
*Session Organizer*, Two-Session Symposium on Simulation of Geomaterials, 17th ASCE Engineering Mechanics Conference, Newark, DE (2004).

*Session Co-Organizer*, Calibration of Constitutive Models, Geo-Frontiers 2005 Congress, Austin, TX (2005).

*Symposium Co-Organizer*, Three-Session Symposium on Constitutive Modeling of Geomaterials, McMat Mechanics and Materials Conference, Baton Rouge, LA (2005).

*Symposium Co-Organizer*, Symposium Honoring Professor Yannis F. Dafalias on the Occasion of His 60th Birthday, McMat Mechanics and Materials Conference, Baton Rouge, LA (2005).

*Symposium Co-Organizer*, Symposium on Geosynthetics and Geosynthetic-Engineered Structures Honoring Professor Robert M. Koerner, McMat Mechanics and Materials Conference, Baton Rouge, LA (2005).

*Symposium Co-Organizer*, Symposium Honoring Professor Leonard R. Herrmann on the Occasion of His 70th Birthday, 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder, CO (2006).

*Session Co-Organizer*, “Constitutive Modeling of Frictional Materials,” 15th U.S. National Congress on Theoretical and Applied Mechanics, Boulder, CO (2006).

*Symposium Co-Organizer*, Mini-Symposium titled “Testing, Modeling and Simulation Mini-Symposium,” Geo-Denver Conference, Denver, CO (2007).

*Session Co-Organizer*, Modeling of Geomaterials, 18th ASCE Engineering Mechanics Conference, Blacksburg, VA (2007).

*Symposium Co-Organizer*, Second Frank L. DiMaggio Symposium, Symposium on Constitutive Modeling, The Fourth Biot Conference on Poromechanics, New York City, NY (2009).

*Symposium Co-Organizer*, Two-Session Symposium in Honor of the late Professor Jerry A. Yamamuro, ASCE GeoCongress (2012).

*Symposium Co-Organizer*, “Design and Analysis of Column Supported Embankments”, ASCE Geotechnical Frontiers, Orlando, FL (2017).

*Co-chairman*, Second USA - Kazakhstan Geotechnical Engineering Workshop, held at the IFCEE 2018 conference in Orlando, FL and at Columbia University in New York City, NY (2018).

*Organizer*, Geotechnical Mini-Symposium, University of Delaware, (22 March 2019).

*Symposium Co-Organizer*, “Computational Geotechnics”, ASCE GeoCongress, Philadelphia, PA (2019).

### **Professional Involvement in Conjunction with Conferences Organization**

*Member of Organizing Committee*, 17th ASCE Engineering Mechanics Conference, Newark, DE (2004).

*Member of the International Advisory Committee*, International Workshop on Constitutive Modeling, Hong Kong, (2007).

*Member of the International Scientific Committee*, The Fourth Biot Conference on Poromechanics, New York City, NY (2009).

*Member of the International Advisory Committee*, The Second International Symposium on Constitutive Modelling, Beijing, China (2012).

*Member of the International Scientific Committee*, The Fifth Biot Conference on Poromechanics (BIOT-5), Vienna, Austria (2013).

*Member of Advisory Committee*, International Symposium on Design and Practice of Geosynthetic-Reinforced Soil Structures, Bologna, Italy (2013).

*Member of Scientific Committee*, XIV International Symposium on Rheology of Soil, Kazan (2014).

*Member of International Scientific Committee*, 6th Biot Conference on Poromechanics, Ecole Nationale des Ponts et Chaussées, Champs-sur-Marne, France (2017).

*Member of International Scientific Committee*, World Engineering Congress, Expo 2017, Astana, Kazakhstan (2017).

*Member of International Advisory Committee*, International Geotechnical Conference on TC305 (Geotechnical infrastructures for Megacities), St. Petersburg State Architecture and Civil Engineering University, Russia (2019).

*Member of Scientific Committee*, 2019 EMI Conference, Cal-Tech, Pasadena, CA (2019).

*Member of Scientific Committee*, XV International Symposium on Rheology of Soil, Kazan, Russia (2020, 2021).

*Member of Scientific Committee*, Historical and Modern Applications in Geotechnical Engineering, organized by the Iraqi Geotechnical Society and the Civil Engineering Department & University of Baghdad (2020).

*Member of Scientific Committee*, 5th International Conference on Geotechnical Research and Engineering (ICGRE-2021), Lisbon, Portugal (2021).

*Member of International Scientific Committee*, The Biot-Bazant Conference on Engineering Mechanics and Physics of Porous Materials (2021).

*Member of International Advisory Committee*, Second International Conference on Geotechnical Engineering, Iraq (2021).

*Member of International Scientific Committee*, 2nd International scientific conference, "Socio-Technical Construction and Civil Engineering" (STCCE-2021), Kazan, Russia (2021).

*Member of International Scientific Committee*, GFAC Conference, St. Petersburg State Architecture and Civil Engineering University, Russia (2021).

*Member of International Advisory Committee*, Third International Conference on Geotechnical Engineering, Iraq (2022).

*Member of Scientific Committee*, 7th International Conference on Geotechnical Research and Engineering (ICGRE 2022), Lisbon, Portugal (2022).

*Member of International Advisory Board*, 17th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (17 ARC), Nur-Sultan, Kazakhstan (2023).

*Member of Scientific Committee*, 8th International Conference on Geotechnical Research and Engineering (ICGRE 2023), Lisbon, Portugal (2023).

*Member of International Scientific Committee*, International Scientific and Practical Symposium "The Future of the Construction Industry: Challenges and Development Prospects", Moscow State University of Civil Engineering, Russia (2023).

*Member of Scientific Committee*, Global Summit on Civil, Structural and Environmental Engineering (GSCSEE2024).

*Member of Scientific Committee*, ASCE Engineering Mechanics Institute International Conference (2024).

*Member of Scientific Committee*, Fourth International Conference on Geotechnical Engineering-Iraq & Warith First International Conference of Engineering Sciences, Karbala, Iraq (2024).

*Member of Scientific Committee*, 2nd International Scientific and Practical Symposium The Future of the Construction industry: Challenges and Development Prospects Moscow, Russia (2024).

*Member of Scientific Committee*, International Scientific Conference on Soil Mechanics and Geotechnics in High-Rise and Underground Construction named after Z. G. Ter-Martirosyan, Moscow, Russia (2024).

*Distinguished Member of Conference Committee*, GFAC 2024 Conference, St. Petersburg State Architecture and Civil Engineering University, Russia (2024).

*Member of Scientific Committee*, XXI Technical Dam Control International Conference, Warsaw, Poland (2025).

*Member of Scientific Committee*, Fifth International Conference on Geotechnical Engineering-Iraq & Third International Conference on Engineering Science and Energy, St. Petersburg, Russia & Sulay-

maniyah, Iraq (2025).

### **Journal Reviewer**

*Acta Geotechnica*

*Advances in Materials Science and Engineering*

ASCE Journals:

*International Journal of Geomechanics*

*Journal of Engineering Mechanics*

*Journal of Geotechnical & Geoenvironmental Engineering*

*Journal of the Structural Division*

*ASTM Geotechnical Testing Journal*

*ASTM Journal of Testing and Evaluation*

*Bulletin of L. N. Gumilyov Eurasian National University. Technical Sciences and Technology Series*

*Composites – Part A: Applied Science and Manufacturing*

*Composites – Part B: Engineering*

*Composites Science and Technology*

*Computers and Geotechnics*

*Computer Methods in Applied Mechanics and Engineering*

*Construction & Building Materials*

*Engineering Geology*

**GEOMATE**

*Geomechanics and Engineering*

*Geotechnical and Geological Engineering*

*Geotextiles and Geomembranes*

*Geosynthetics International*

*International Journal for Numerical and Analytical Methods in Geomechanics*

*International Journal of Plasticity*

*International Journal of Solids and Structures*

*Journal of the Mechanical Behavior of Materials*

*Journal of Rock Mechanics and Geotechnical Engineering*

*Journal of Thermoplastic Composite Materials*

*Journal of Sandwich Structures and Materials*

*Mathematical Problems in Engineering*

*Soil Dynamics and Earthquake Engineering*

*Soils and Foundations*

*Technobius*

*Transportation Infrastructure Geotechnology*

### **Textbook Reviewer**

In-depth reviewer of *Structural Modeling and Analysis*, by C. L. Dym, Cambridge University Press (1997).

Potential Textbooks Reviewed for (listed in alphabetical order):

Cambridge University Press  
 Elsevier  
 IOP Publishing (UK)  
 John Wiley & Sons  
 Marcel Dekker  
 McGraw-Hill Book Company  
 Prentice Hall, Inc

### **Courses Attended for Professional Development**

“Nonlinear Finite Element Analysis,” Palo Alto, CA., T. J. R. Hughes and T. Belytschko instructors (1991).

“Teaching Mechanics and Finite Element Analysis,” MIT, Boston, MA, K. J. Bathe, organizer (1997).

“Workshop on Reform of Undergraduate Mechanics Education,” Penn State University, State College, PA (1998).

Summer Faculty Institute, University of Delaware (2008).

## Courses Taught

### **University of California, Davis**

Statics (undergraduate).

### **University of Arizona**

Statics (undergraduate).

Introduction to the Finite Element Method (undergraduate).

Theory of Plates and Shells (graduate).

### **University of Delaware**

Statics (undergraduate)

Solid Mechanics (undergraduate)

Advanced Strength of Materials (graduate)

Soil Mechanics (undergraduate).

Soil Dynamics (graduate) (new course, co-developed at UD).

Advanced Topics in Geomechanics (graduate) (new course, developed at UD).

Inelastic Behavior of Geomaterials (graduate) (new course, developed at UD).

Computational Geomechanics (graduate) (new course, developed at UD).

Civil Engineering Analysis (undergraduate).

Computer Methods in Structural Engineering (undergraduate) (new course, co-developed at UD).

Introduction to the Finite Element Method (undergraduate/graduate) (new course, developed at UD).

Intermediate Topics in Finite Element Analyses (graduate) (new course, developed at UD).

Advanced Topics in Finite Element Analyses (graduate) (new course, developed at UD).

**Columbia University**, New York City (on sabbatical leave, in 2012)

Advanced Soil Mechanics (graduate).

**L. N. Gumilyov Eurasian National University**, Astana, Kazakhstan (October 2015)

“Bases of Scientific Research and Experimental Methods” (Masters level) (<http://www.enu.kz/en/info/news/38971/>).

**L. N. Gumilyov Eurasian National University**, Astana, Kazakhstan (on sabbatical leave, in the fall of 2018)

“Bases of Scientific Research and Experimental Methods” (Masters level) .

“Scientific Research Methods” (PhD level).

“Numerical Methods and Geoinformational Technologies in Geotechnics” (PhD level).

**L. N. Gumilyov Eurasian National University**, Astana, Kazakhstan (online distance learning format, spring 2020)

“Geological and Geotechnical Engineering” (Masters level).

“Structural Properties of Bases and Foundations” (PhD level).

“Improvement of Soil Bases” (PhD level).

**L. N. Gumilyov Eurasian National University**, Astana, Kazakhstan (fall 2022)

“Geoenvironment and Geotechnology in Seismic Areas” (PhD level). (<https://enu.kz/en/info/news/69067/>).

### Acknowledged Teaching Effort

Provost’s Teaching Improvement Award, University of Arizona (1987).

Nominated for College Outstanding Teaching Award, University of Delaware (2001).

Nominated for Excellence in Teaching Award, University of Delaware (2022-2023).

## Dissertation and Thesis Supervision

### Doctoral Students Supervised

1. Dr. Montri Dechasakulsom, “Modeling Time-Dependent Behavior of Geogrids and its Application to Geosynthetically Reinforced Walls” (December 2000). *Presently*: Director of the Bureau of Materials Analysis and Inspection, Department of Highways, Bangkok Metropolitan Area, Thailand.
2. Dr. Ping Jiang, “Investigation of Mixed Elements for Analysis of Geotechnical Engineering Problems” (December 2009). *Presently*: Bridge Management Engineer, Delaware Department of Transportation, Dover, DE.
3. Dr. Pongpipat Anantanasakul, “Three-Dimensional Experiments and Modeling of Anisotropic Clay”, co-advised at Oregon State University by the late Professor J. A. Yamamuro (September 2010). *Presently*: Assistant Professor, Department of Civil and Environmental Engineering, Faculty of Engineering, Mahidol University, Nakhon Pathom 73170, Thailand.
4. Dr. Majid Khabbazian, “Numerical Simulation of Geosynthetic Encased Columns Used Individually and in Group Configurations” (July 2011). *Presently*: Senior Engineer, Schnabel Engineering, Chadds Ford, PA.

5. Dr. Andrés Nieto Leal (*Fulbright scholar* on 5-year fellowship), “Generalized Bounding Surface Model for Cohesive Soils: A Novel Formulation for Monotonic and Cyclic Loading” (May 2016). *Presently*: Department Chairman, Docente Facultad de Ingeniería, Universidad Militar Nueva Granada, Sede Campus Nueva Granada, Cajicá, Colombia.
6. Dr. Meysam Mashayekhi, “Modeling the Temperature-Dependent Response of Saturated Cohesive Soils in a Generalized Bounding Surface Framework” (December 2018). *Presently*: Assistant Professor, Department of Civil Engineering, University of Isfahan, Iran.
7. Dr. Mehdi Kadivar, “Bounding Surface Plasticity-Based Hyperelastic Constitutive Model for Unsaturated Granular Soils”, co-advised by Professor Kalehiwot Nega Manahiloh (August 2019). *Presently*: Senior Engineer, COWI North America Ltd., New York City.
8. Dr. Ali Nashat Shukur Al-Saadi, “Numerical Simulation of Geosynthetic Encased Stone Columns Bearing on a Compressible Soil Layer Used Individually and in Group Configurations”, co-advised by Professor Christopher L. Meehan (August 2021). *Presently*: Staff Geotechnical Engineer, DMY Engineering Consultants Chantilly, VA.

### Masters Students Supervised

1. Mr. Fan Xi, “Finite Element Analysis of Geosynthetically Reinforced Walls: A Parametric Study”, (May 1992).
2. Mr. Jianchao Li, “Numerical Simulation of Interfaces in Geomaterials: Development of a New Zero-Thickness Element”, (May 1993).
3. Mr. Sudhir M. Rao, “Issues Associated with a Time-Dependent Thermo-Mechanical Constitutive Model for Cohesive Soils”, (December 1994).
4. Mr. Scott D. Holsinger, “Development, Testing and Evaluation of Concrete-Engineered Wood-FRP Composite T-Beams”, co-advised with M. J. Chajes (May 1995).
5. Ms. Amy Ward, “Seismic Screening and Retrofitting of Delaware’s Bridges”, co-advised with M. J. Chajes (August 1995).
6. Ms. Wei Li, “Composite Soil Structures: Methodology for Dynamic Analysis”, (May 1996).
7. Mr. Kiran Manderkar, “Solution Strategies for Transversely Loaded Inextensible Plates”, (May 1997).
8. Ms. Dana Heffernan, “Investigation of the Relation Between Creep and Stress Relaxation in Geogrids”, (August 1998).
9. Mr. Christian H. Fuchs, “Influence of Adjacent Strip Footings on Associated Deformations in Granular Soils”, (December 1999). (*Fulbright scholar* on 9-month fellowship).
10. Mr. Zhijun Pan, “Further Assessment of Predictive Capabilities of Bounding Surface Models for Cohesive Soils”, (July 2004).
11. Ms. Christy L. Bugher, “A Parametric Study of Dynamic Amplification Factors for Reinforced Concrete Box Culverts Using Three-Dimensional Finite Element Analysis”, co-advised by Professor Kalehiwot Nega Manahiloh (May 2019).
12. Douglas Nii Martey Botchway, “Investigation of Conforming Mixed Finite Elements with Quadratic Pressure Approximations”, (Summer 2023).

### Visiting Faculty Hosted

1. Mr. Andrés Nieto Leal, Profesor Programa Ing. Civil, Universidad Militar Nueva Granada, Bogotá, Colombia (Summer 2009; Summer 2010).

2. Thomas Barciaga, Lehrstuhl für Grundbau, Boden- und Felsmechanik, Fakultät für Bau- und Umweltingenieurwissenschaften, Ruhr-Universität Bochum (Spring 2014).
3. Jiaquan Wang, Professor, College of Civil and Architectural Engineering, Guangxi University of Science and Technology, Chengzhong District, Liuzhou, Guangxi, 545006, China (January 2016 to January 2017).
4. Abdollah Sadr, Ph.D. student, Shiraz University, Iran (April to October 2018).

#### **Membership in Departmental Doctoral Dissertation Committees**

1. Mr. Lizheng Cui, “Theory of Poroelasticity with Application to Rock Mechanics”, (December 1995).
2. Mr. Paul Gilbert, “Disintegration of Clay During Hydraulic Transportation Through a Dredge Pipe”, (December 1996).
3. Mr. Paston Sidauruk, “Parameter Determination for Multi-Layered Aquifer and Groundwater Contaminant Transport”, (December 1996).
4. Mr. William W. Finch, Jr., “Rehabilitation of Concrete Structures Using Advanced Composite Materials”, (December 1997).
5. Mr. David W. Dinehart, “The Dynamic Behavior of Wood-Framed Shear Walls with Passive Energy Dissipation Devices”, (December 1998).
6. Mr. Yongke Mu, “Response of Poroelastic Seabed to Acoustic and Water Waves”, (May 1998).
7. Mr. Haoxiong Huang, “Analysis and Testing of Bridge Grid Decks”, (May 2001).
8. Mr. William M. Edberg, “Behavior of Orthotropic Fiber Reinforced Polymer Bridge Decks on Traditional Girders”, (May 2001).
9. Mr. Xiaofeng Hu, “Structural Damage Identification Based on Static Dead Load Strain Measurements”, (December 2002).
10. Mr. Suresh Kumar Gutta, “Modeling Large Three Dimensional Stress Reversals in Cross-Anisotropic Sands”, (December 2003).
11. Mr. Yigang Liu, “The Stress-Strain Behavior of Kaolinite Clay in Triaxial Compression and Extension Tests at Elevated Pressures”, (December 2004).
12. Mr. Qiang Lu, “Influence of Random Defects on Mechanical Behavior of Carbon Nanotubes through Atomistic Simulation”, (December 2005).
13. Mr. Farshid Vahedifard, “Seismic Displacement of Unreinforced and Reinforced Earth Structures”, (July 2011).
14. Ms. Hong Su, “Energy Absorption Capabilities of Composite Sandwich Panels under Blast Loads”, (December 2011).
15. Mr. Beongjoon Kang, “Framework for Design of Geosynthetic Reinforced Segmental Retaining Walls”, (December 2013).
16. Mr. Sittinan Benjasupattananan, “Deterministic and Probabilistic Approaches for Modelling Levee Underseepage”, (December 2013).
17. Mr. Majid Talebi, “Analysis of the Field Behavior of a Geosynthetic Reinforced Soil Integrated Bridge System During Construction and Operation”, (December 2016).
18. Mr. William J. Baker III, “Experimental Studies Utilizing Continuous Compaction Control Technologies to Enhance Earthwork QA/QC Protocols”, (May 2024).

**Membership in External Doctoral Dissertation Committees at the University of Delaware**

1. Mr. Brendan J. O'Toole, "Modelling the Effects of Heterogeneity in Curved Composite Beams," *Department of Mechanical Engineering, University of Delaware* (December 1992).
2. Mr. Philip H. Larson, Jr., "The Use of Piezoelectric Materials in Creating Adaptive Shell Structures," *Department of Mechanical Engineering, University of Delaware* (May 1994).
3. Mr. Pavel Simáček, "Numerical Modeling of Sheet Forming Process," *Department of Mechanical Engineering, University of Delaware* (May 1994).
4. Mr. Stephen F. Shuler, "Rheology and Forming of Long Fiber Reinforced Thermoplastic Composite Materials," *Department of Mechanical Engineering, University of Delaware* (December 1995).
5. Mr. James F. Newill, "Composite Sandwich Structures Incorporating Piezoelectric Materials," *Department of Mechanical Engineering, University of Delaware* (December 1995).
6. Mr. Kesavan P. K. Potty, "Use of Composite and Sandwich Materials in Complex Shell Structures," *Department of Mechanical Engineering, University of Delaware* (May 1996).
7. Mr. Steven J. Timmins, "The Decomposition Approach and its Application to Sensitivity Performance," *Department of Mechanical Engineering, University of Delaware* (May 1997).
8. Mr. Eyassu Woldesenbet, "High Strain Rate Properties of Composites," *Department of Mechanical Engineering, University of Delaware* (December 1997).
9. Mr. Xiaoping Ruan, "Analysis and Modeling of Electromechanical Behavior of Piezoceramic Composites," *Department of Mechanical Engineering, University of Delaware* (December 1998).
10. Mr. Zhouhua Li, "Dynamic Thermomechanical Behavior of Polymers and Polymeric Matrix Composites," *Department of Mechanical Engineering, University of Delaware* (May 2000).
11. Mr. Santosh Prabhu, "Three-Dimensional and K-Dominance Effects in Isotropic and Anisotropic Cracked Solids," *Department of Mechanical Engineering, University of Delaware* (December 2000).
12. Mr. Edward M. Grace, Jr., "Coupled Numerical Modeling of a West Antarctic Ice-Sheet/Ice-Stream/Ice-Shelf Drainage," *Department of Geography, University of Delaware* (May 2001).
13. Ms. Priya Thamburaj, "Structural-Acoustic Studies of Sandwich Structures used in Global Transport Aircraft," *Department of Mechanical Engineering, University of Delaware* (December 2001).
14. Mr. Eric C. Preissner, "Analysis of Cylindrical Composite Shells," *Department of Mechanical Engineering, University of Delaware* (May 2002).
15. Ms. Zhaohui Chen, "On the Analysis and Optimization of a Pressurized Mid-Plane Asymmetric Sandwich Non-Circular Cylindrical Shell," *Department of Mechanical Engineering, University of Delaware* (December 2002).
16. Mr. Alper Tasdemirci, "Experimental and Modeling Studies of Stress Wave Propagation in Multilayer Composite Materials," *Department of Mechanical Engineering, University of Delaware* (December 2005).
17. Ms. Fuping Zhou, "Creeping Flow Behavior of Dense Granular Materials under High Confinement Pressure," *Department of Mechanical Engineering, University of Delaware* (May 2006).
18. Mr. Dan Cojocaru, "On Numerical Modeling of Cyclically Loaded Structures," *Department of Mechanical Engineering, University of Delaware* (May 2008).
19. Mr. Narinder Singh Khattri, "On the Mechanical Response of PEM Fuel Cell Membranes," *Department of Mechanical Engineering, University of Delaware* (June 2012).

20. Mr. Parag Gopalakrishna Nittur, "Assessment and Extension of a Plastically Dissipated Energy Criterion for Numerical Modelling of Cyclic Crack Growth," *Department of Mechanical Engineering, University of Delaware* (July 2013).
21. Mr. John J. Gangloff Jr., "Modeling and Analysis of Bubble Mobility in Fibrous Porous Media," *Department of Mechanical Engineering, University of Delaware* (August 2014).
22. Mr. Subramani Sockalingam, "Transverse Impact of Ballistic Fibers and Yarns – Fiber Length Scale Modeling and Experiments," *Department of Mechanical Engineering, Center for Composite Materials, University of Delaware* (June 2016).
23. Mr. Guoliang Ding, "On Numerical Modeling of Fatigue Crack Growth in Polymers Using Plastically Dissipated Energy," *Department of Mechanical Engineering, University of Delaware* (August 2016).
24. Mr. Kelechi O. Ogbuanu, "Numerical Determination of the Effective Transport Properties of Heterogeneous Materials by Digital Image Analysis," *Department of Mechanical Engineering, University of Delaware* (December 2022).
25. Ms. Soodabeh (Sophie) Sharafi, "Multiscale modeling and characterization of 3D Printing of high temperature polymer composites," *Department of Mechanical Engineering, University of Delaware* (December 2024).

#### Membership in External Doctoral Dissertation Committees at other Universities

1. Mr. Mohammad M. Toufigh, "Behavior of Unsaturated Soil and its Influence on Soil-Soil Interaction at an Interface", *Department of Civil Engineering and Engineering Mechanics, University of Arizona* (1987).
2. Mr. Bashar S. Qubain, "Stress-Deformation Behavior of Footing Foundations", *Department of Civil Engineering, Drexel University* (June 1999).
3. Mr. Carl D. Liggio, Jr., "Experimental Study and Modeling of Instability and Time Effects on Granular Materials", *Department of Civil Engineering, The Johns Hopkins University* (October 2000).
4. Mr. Dongyi Yue, "An Anisotropic Time-Dependent Bounding Surface Model for Clays and its Application to a Containment Dike Constructed over Soft Foundation", Doctor of Engineering Science, *Fu Foundation School of Engineering and Applied Science, Columbia University* (May 2001).
5. Mr. Jianhong Jiang, "An Anisotropic Elastoplastic-Viscoplastic Bounding Surface Model for Clays", Doctor of Engineering Science, *Fu Foundation School of Engineering and Applied Science, Columbia University* (May 2010).
6. Mr. Ben Adam Leshchinsky, "Enhanced Ballast Performance using Geocell Confinement", Doctor of Engineering Science, *Fu Foundation School of Engineering and Applied Science, Columbia University* (May 2012).
7. Mr. Ching Hung, "Enhanced Anisotropic Bounding Surface Model: Implementation and Simulation of Excavation in Soft Cohesive Soils", Doctor of Engineering Science, *Fu Foundation School of Engineering and Applied Science, Columbia University* (December 2012).
8. Ms. Allison June Quiroga, "A Bounding Surface Model for Cyclic Response of Cement-Improved Clays", *School of Civil Engineering and Environmental Science, University of Oklahoma* (May 2018).
9. Ms. Karlygash Boranbaykyzy Borgekova, "Analysis of interaction of precast concrete joint piles with soil", *Department of Design of Buildings and Structures of the Architecture and Civil Engineering Faculty, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan* (June 2020).
10. Mr. Yerkebulan Zharkenov, "Solutions to the storm sewer system of the Astana city", *Department of Design of Buildings and Structures of the Architecture and Civil Engineering Faculty, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan* (August 2020).

11. Ms. Nurgul U. Shakirova, “Comparative research of continuity of bored piles by PIT and CROSS-hole analysis methods”, *Department of Design of Buildings and Structures of the Architecture and Civil Engineering Faculty, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan* (August 2020).
12. Mr. Ilyas Zhumadilov, “Analysis of the mechanical properties of soil bases”, *Department of Design of Buildings and Structures of the Architecture and Civil Engineering Faculty, L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan* (August 2021).
13. Ms. Gulnar Zharkenova, “Calculation of difference schemes for non-stationary boundary tasks of thermal conductivity of building materials”, *Department of Design of Buildings and Structures of the Architecture and Civil Engineering Faculty, L. N. Gumilyov Eurasian National University, Astana, Kazakhstan* (July 2024).

#### **Membership in Departmental Masters Thesis Committees**

1. Ms. Nana Abena Konadu Osei Tutu, “Improving Stormwater Infiltration with Pneumatic Air Fracturing”, (June 2024).

#### **Membership in External Master Thesis Committees at the University of Delaware**

1. Mr. Bryan A. Cheeseman, “On the Prediction of Strength of Stretch Formed Thermoplastic Composite Beams with Notches,” *Department of Mechanical Engineering, University of Delaware* (December 1994).
2. Mr. Edward M. Grace, Jr., “Climatic Mass Balance in a Finite Element Glacier Model,” *Department of Geography, University of Delaware* (May 1995).
3. Mr. Francesco Roselli, “Interlaminar Strength of Thermoplastic Composite Rings Manufactured Using the Laser Assisted On-Line Consolidation Process,” *Department of Mechanical Engineering, University of Delaware* (December 1995).
4. Mr. Thomas G. Ribble, “Stresses in the Developing Proximal Fumur,” *Department of Mechanical Engineering, University of Delaware* (December 1996).
5. Mr. Rishikesh B. Bhalerao, “Numerical and Experimental Characterization of Cellulose,” *Department of Mechanical Engineering, University of Delaware* (August 1998).
6. Mr. Dhiren Modi, “Numerical Issues in Mold Filling Simulations for Composites Processing,” *Department of Mechanical Engineering, University of Delaware* (December 2003).
7. Mr. Justin Merotte, “Flow Analysis with Fiber Preform Deformation During Compression Resin Transfer Molding,” *Department of Mechanical Engineering, University of Delaware* (December 2009).
8. Mr. Glenn C. Catlin, “PEM Fuel Cell Modeling and Optimization Using a Genetic Algorithm,” *Department of Mechanical Engineering, University of Delaware* (March 2010).
9. Mr. Ryan Green, “Finite Element Modeling of a Suction Caisson Subject to Monotonic Tensile Loading,” *Department of Geology, University of Delaware* (March 2019).

#### **Membership in Senior Thesis Committees at the University of Delaware**

1. Mr. Peter Bocchini, “Combinatorial Method To Optimize Oxygen Diffusion of  $(La_{1-x}Sr_x)_{1-y}COO_3$  for SOFC Cathodes,” *Department of Mechanical Engineering, May 2010* (third reader).
2. Mr. R. Andrew Hackendorn, “Doped  $TiO_2 - Ge$  Nanocomposites For Thermoelectric Applications,” *Department of Mechanical Engineering, May 2010* (third reader).
3. Mr. Koffi Pierre Yao, “ $TiO_2 - CNT$  Composite as Novel Corrosion Resistant PEMFC Catalyst Support,” *Department of Mechanical Engineering, May 2010* (third reader).

4. Mr. Alex Aten, "The Effect of Freeze Thaw Cycles on the Mechanical Properties of Proton," *Department of Mechanical Engineering*, May 2011 (third reader).
5. Mr. Andrew Baker, "Investigation of Sputtered  $BA_{0.5}SR_{0.5}CO_{0.8}FE_{0.2}O_{3-\Delta}$  Electrodes With Impedance Spectroscopy," *Department of Mechanical Engineering*, May 2011 (third reader).
6. Mr. Edward Bonnevie, "The Contact and Friction of Articular Cartilage Using Spherical Probes," *Department of Mechanical Engineering*, April 2011 (third reader).
7. Mr. Anthony Coppola, "Development of Braided Composites with Vascular Channels for Healing Applications," *Department of Mechanical Engineering*, May 2011 (third reader).
8. Ms. Sarah Friedrich, "Processing and Electrical Characterization of Nanocomposites for Damage Detection in Composite Joints," *Department of Mechanical Engineering*, May 2011 (third reader).
9. Ms. Christine Gregg, "Electrophoretic Deposition of Nanomaterials," *Department of Mechanical Engineering*, May 2013 (third reader).
10. Mr. Benjamin J. Hockman, "Emulating Nuclear Emissions with a Pulsed Laser," *Department of Mechanical Engineering*, May 2013 (third reader).
11. Mr. Christopher Kerwien, "Design And Characterization of 12V Analog Trans-Impedance Amplifier For Superlattice LED Projector," *Department of Electrical and Computer Engineering*, May 2013 (third reader).
12. Mr. K. Michael Rowley, "The Effect of Plantarflexion Angle on Landing Mechanics," *Department of Kinesiology and Applied Physiology*, May 2013 (third reader).
13. Ms. Chelsea Cox, "Mitigating Climate Change and Overcoming Transportation Challenges: A Case Study on High Speed Rail in California," *Energy and Environmental Policy*, May 2014 (third reader).

## Activities

### Membership in University Committees

- Ad-Hoc Sub-Committee of the Large-Scale Computing Advisory Committee to Investigate High-Performance Computing Purchase, *Member* (1994 to 1995).
- Committee on Information Resource Planning and Management (CIRPM), *Member*, (1993 to 2001).
- Faculty Senator (1997 to 1999).
- Large-Scale Computing Advisory Committee, *Member* (1992 to 1997).
- University Competitive Fellowships, *Evaluator* (March 2001).
- University Graduate Studies Committee, *Member* (1999 to 2001).
- University Student and Faculty Honors Committee, *Member* (2001 to 2003).
- Faculty Senate Library Committee, *Member* (2005 to 2009), *Interim Chair* (2007).
- Faculty Senate Committee on General Education, *Member* (2009 to 2011).

### Membership in College Committees

- College Elections Committee, *Chairman* (1998).
- Computing Infrastructure Committee, *Member* (1996 to 1997).
- College Computing Committee, *Member* (2000).
- Computer Classroom Committee (eCALC), *Member* (2000 to 2004).
- eCALC Search Committee, *Member* (2002).

Solid Mechanics Faculty Search Committee, Department of Mechanical Engineering, *Member* (2000 to 2001).

UD-DSU Dual Degree Program Committee, *Member* (2009 to 2012).

University of Delaware Formula Society of Automotive Engineers (FSAE), *Member* (2009 to present).

College of Engineering College Level Awards Committee (2015 to present).

Educational Activities Committee (2020 to present).

### Membership in Departmental Committees

ABET Implementation Committee, *Member* (1998 to 2000).

Ad-Hoc Web Committee, *Chairman* (2007 to 2009).

Computation Committee, *Chairman* (1993 to 2001).

Continuing Non-Tenure Track (CNTT) faculty search committee, *Member* (2011).

Geotechnical Faculty Search Committee, *Member* (1996/1997), (1998/1999), (2005/2006), (2022), *Chairman* (2012/2013, 2023/2024).

Graduate Committee, *Member* (1992 to 1996, 2013 to present), *Chairman* (2001 to 2004; 2015 to 2018), *co-Chairman* (2019 to present).

Structural Mechanics Faculty Search Committee, *Member* (2003/2004).

Two-Year Visiting Assistant Professor Search Committee, *Chairman* (Dec. 2019 to January 2020).

Undergraduate Recruitment and Scholarship Committee, *Member* (1996 to 1998).

Undergraduate Committee, *Member* (2009 to 2013).

### Miscellaneous

Co-authored the computer program “INTERP – a FORTRAN callable free format data interpretation subroutine system” (Copyright 1982).

State of California Engineer-In-Training Certificate No. 43764 (1978).

Speak, read and write in the Russian language.