ANTONIO BOBET

Edgar B. and Hedwig M. Olson Professor of Civil Engineering
Lyles School of Civil Engineering
550 Stadium Mall Drive
Purdue University
West Lafayette, IN 47907
USA
Phone: 765-494-5033
Email: bobet@purdue.edu
https://engineering.purdue.edu/~bobet/

PROFESSIONAL PREPARATION

1992-1997 Sc.D. in Civil Engineering.
Massachusetts Institute of Technology. Cambridge, MA, USA
Thesis title: "Crack Propagation and Coalescence in Rock Type Materials"
Advisor: Professor Herbert H. Einstein

1977-1983 Ingeniero de Caminos, Canales y Puertos
6 year degree program, BS and MS.
Universidad Politécnica de Madrid, Madrid, Spain.
With Honors.

APPOINTMENTS

2019- Edgar B. and Hedwig M. Olson Professor in Civil Engineering
School of Civil Engineering, Purdue University

2009-2010 Associate Director for Research
Global Engineering Program, Purdue University

2008- Professor
School of Civil Engineering, Purdue University

2003-2008 Associate Professor
School of Civil Engineering, Purdue University

1997-2003 Assistant Professor
School of Civil Engineering, Purdue University

1992-1997 Research Assistant
Department of Civil and Environmental Engineering,
Massachusetts Institute of Technology, Cambridge, MA.

1988-1992 Construction Manager
FERROVIAL, S.A. Construction Company. Spain
1990-1992 N-II Bypass in Girona (Spain); $80 million project.
1988-1990 Seu-d'Urgell-Andorra (Spain); $5 million project.
1988-1990 Road "L'Obac" (Andorra); $6 million project.

1984-1988 Project Engineer in the geotechnical engineering division

EUROESTUDIOS S.A. Engineering Consulting Firm. Spain.
Major projects involved: geotechnical design and supervision during construction of the Terrasa-Manresa highway ($200 million project); geotechnical design of N-I freeway from Tolosa to Ikaztegieta; geotechnical design of N-I freeway from Ikaztegieta to Legorreta; a number of projects related to foundation design, slope stability, and tunnel design.

Visiting Appointments

Spring 2004	Visiting Professor, Univ. Politècnica de Catalunya, Barcelona, Spain
Fall 2007	Visiting Associate Professor, Massachusetts Institute of Technology
May 2011	Visiting Scientist, Nanyang Technological University, Singapore
Nov. 2012	Visiting Professor, EPFL, Switzerland
Fall 2014	Visiting Scholar, Massachusetts Institute of Technology
2014-2018	Visiting Chair Professor of the Innovation Center for Disaster Prevention, School of Civil Engineering, Tongji University, China.
2016-2018	Guest Professor, Tongji University, China

LICENSES AND REGISTRATIONS

1983-present P.E. (Spain). Registration No. 8084 (Active)

HONORS, AWARDS AND RECOGNITIONS

1983	Guerra y Rubio Prize best Civil Engineering graduating students, U. Politécnica de Madrid, Madrid, Spain.
2005	Roy E. and Myrna Wansik Research Award School of Civil Engineering, Purdue University
2007	Editorial Board Member Certificate of Appreciation The Geo-Institute of ASCE
2009	Director, Board of Directors of ARMA (American Rock Mechanics Association)
2011	ASCE Ralph B. Peck Award
2011	Vice-president of ARMA (American Rock Mechanics Association)
2012	Chair, 46th U.S. Rock Mechanics/Geomechanics Symposium
2012	Keynote lecturer, International Engineering and Infrastructure Congress. Panama Canal.
2012	National Award for Significant Contributions in Science and Technology - SENACYT Panama
2012	ARMA Applied Research Award
2012	Member of the Geotechnical Advisory Board of the Panama Canal
2013	President of ARMA (American Rock Mechanics Association)
2015	Immediate Past-President of ARMA (American Rock Mechanics Association)
2015	Associate Editor for the Americas, Rock Mechanics and Rock Engineering Journal
2015	Co-Editor in Chief, Underground Space Journal

2016 ARMA Fellow (elected Chair of the Fellows in 2018)
2016 High-end Foreign Expert, Government of China (2016-2018)
2017 Seed for Success Award, Purdue University
2019 CE Outstanding Mentor Award, Lyles School of Civil Engineering, Purdue University
2019 Seed for Success Award, Purdue University

Students

2012 Alain El Howayek. GeoPoster 2012 - First Place. Geocongress 2012, ASCE.
2012 Chadi El Mohtar, Assistant Professor at U. Texas at Austin - NSF CAREER
2014 Ahmadreza Hedayat, Assistant Professor at IUPUFW – 2014 ARMA Dr. N.G.W. Cook Ph.D. Dissertation Award for best Ph.D. Thesis in Rock Mechanics and Rock Engineering
2015 Ahmadreza Hedayat, Assistant Professor at IUPUFW – 2015 ISRM Rocha Medal Runner-up
2016 Anahita Modiriasari. Best Poster Award – 50th US Rock Mechanics/Geomechanics Symposium.
2018 Anahita Modiriasari, Postdoctoral Researcher, Purdue University - 2018 ARMA Dr. N.G.W. Cook Ph.D. Dissertation Award for best Ph.D. Thesis in Rock Mechanics and Rock Engineering.
2019 Danielli de Melo Moura. Best Poster Award – 53rd US Rock Mechanics/Geomechanics Symposium.

PUBLICATIONS

Refereed Journals

1. Bobet, A. and Einstein, H.H. (1998). Fracture Coalescence In Rock-Type Materials Under Uniaxial And Biaxial Compression. *International Journal of Rock Mechanics and Mining Sciences*, Vol. 35, No. 7, pp. 863-889.

2. Bobet, A. and Einstein, H.H. (1998). Numerical Modeling of Fracture Coalescence in Rock Materials. *International Journal of Fracture*, Vol. 92, No. 3, pp. 221-252.

3. Bobet, A., Aristorenas, G. and Einstein, H.H. (1998). Feasibility Analysis for a Radioactive Waste Repository Tunnel. *Tunnelling and Underground Space Technology*, Vol. 13, No. 4, pp. 409-426.

4. Bobet, A. (1999). Technical Note: Analytical Solutions for Toppling Failure. *International Journal of Rock Mechanics and Mining Sciences,* Vol. 36, pp. 971-980.

5. Vásárhelyi B. and Bobet, A. (2000). Modeling of Crack Coalescence in Uniaxial Compression. *Rock Mechanics and Rock Engineering*, Vol. 33, No. 2, pp. 119-139.

6. Bobet, A. (2000). The Initiation of Secondary Cracks in Compression. *Engineering Fracture Mechanics*, Vol. 66, No. 2, pp. 187-219.

7. Bobet, A. (2001). Influence of the Loading Apparatus on the Stresses within Biaxial Specimens. *Geotechnical Testing Journal*, Vol. 24, No. 3, pp. 256-272.

8. Vinard, P., Bobet, A. and Einstein, H.H. (2001). Generation and Evolution of Hydraulic Underpressures at Wellenberg, Switzerland. *Journal of Geophysical Research*, Vol. 106, No. B12, pp. 30,593-30,605.

9. Bobet, A. (2001). Analytical Solutions for Shallow Tunnels in Saturated Ground. *ASCE Journal of Engineering Mechanics*, Vol. 127, No. 12, pp. 1258-1266.

10. Bobet, A. (2001). A Hybridized Displacement Discontinuity Method for Mixed Mode I-II-III Loading. *International Journal of Rock Mechanics and Mining Sciences.* Vol. 38, pp. 1121-1134.

11. Chou, W. and Bobet, A. (2002). Predictions of Ground Deformations in Shallow Tunnels in Clay. *Tunnelling and Underground Space Technology*, Vol. 17, pp. 3-19.

12. Sagong, M. and Bobet, A. (2002). Coalescence of Multiple Flaws in a Rock-model Material in Uniaxial Compression. *International Journal of Rock Mechanics and Mining Sciences,* Vol. 39, No. 2, pp. 229-241.

13. Bobet, A. (2003). Effect of Pore Water Pressure on Tunnel Support During Static and Seismic Loading. *Tunnelling and Underground Space Technology*, Vol. 18, pp. 377-393.

14. Chou, W. and Bobet, A. (2003). Discussion: Predictions of ground deformations in shallow tunnels in clay. *Tunnelling and Underground Space Technology,* Vol. 18, pp. 95-97.

15. Mutlu, O., and Bobet, A. (2005). Slip Initiation on Frictional Fractures. *Engineering Fracture Mechanics Journal*, Vol. 72, pp. 729-747.

16. Lee, H.S., and Bobet, A. (2005). Laboratory Evaluation of Pullout Capacity of Reinforced Silty Sands in Drained and Undrained Conditions. *ASTM Geotechnical Testing Journal*, Vol. 28, No. 4, pp. 370-379.

17. Bobet, A. and Mutlu, O. (2005). Stress and Displacement Discontinuity Element Method for Undrained Analysis. *Engineering Fracture Mechanics Journal*, Vol. 72, pp. 1411-1437.

18. Huo, H., Bobet, A., Fernández, G., and Ramírez, J. (2005). Load Transfer Mechanisms between Underground Structure and Surrounding Ground: Evaluation of

the Failure of the Daikai Station. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 131, No. 12, pp. 1522-1533.

19. Bobet, A. (2006). A Simple Method for the Design of Tunnel Support with Anchored Rockbolts. *Rock Mechanics and Rock Engineering*, Vol. 39, No. 4, pp. 315-338.

20. Parra-Montesinos, G.J., Bobet, A., and Ramirez, J. (2006). Evaluation of Soil-Structure Interaction and Structural Collapse in Daikai Subway Station During Kobe Earthquake. *American Concrete Institute, Structural Journal*, Vol. 103, No. 1, pp. 113-122.

21. Nam, S. and Bobet, A. (2006). Liner Stresses in Deep Tunnels below the Water Table. *Tunnelling and Underground Space Technology*, Vol. 21, No. 6, pp. 626-635.

22. Mutlu, O. and Bobet, A. (2006). Slip Propagation along Frictional Discontinuities. *International Journal of Rock Mechanics and Mining Sciences,* Vol. 43, pp. 860-876.

23. Huo, H., Bobet, A., Fernández, G., and Ramírez, J. (2006). Analytical Solution for Deep Rectangular Structures Subjected to Far-Field Shear Stresses. *Tunnelling and Underground Space Technology*, Vol. 21, No. 6, pp. 613-625.

24. Nam, S. and Bobet, A. (2007). Radial deformations induced by groundwater flow on deep circular tunnels. *Rock Mechanics and Rock Engineering*, Vol. 40, No. 1, pp. 23-39.

25. Bobet, A., Lee, H.S., and Santagata, M.C. (2007). Drained and Undrained Pullout Capacity of a Stiff Inclusion in a Saturated Poroelastic Matrix. *International Journal for Numerical and Analytical Methods in Geomechanics*, Vol. 31, No. 5, pp. 715-734.

26. Bobet, A., Nam, S. (2007). Stresses around Pressure Tunnels with Semi-Permeable Liners. *Rock Mechanics and Rock Engineering*. Vol. 40, No. 3, pp. 287-315.

27. Bobet, A. (2007). Ground and Liner Stresses due to Drainage Conditions in Deep Tunnels. *Felsbau*, Vol. 25, No. 4, pp. 42-47. **Invited paper.**

28. Smith-Pardo, J. and Bobet, A. (2007). Behavior of Rigid Footings under Combined Axial Load and Moment. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 133, No. 10, pp. 1203-1215.

29. Santagata, M.C., Bobet, A., Johnston, C., and Hwang, J. (2008). One-dimensional Compression Behavior of Highly Organic Soil. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 134, No. 1, pp. 1-13.

30. Bobet, A., Fernandez, G., Huo, H., and Ramirez, J. (2008). A Practical Procedure to Estimate Seismic-Induced Deformations of Shallow Rectangular Structures. *Canadian Geotechnical Journal*, Vol. 45, No. 7, pp. 923-938.

31. Bayoumi, A. M., Bobet, A. and Lee, J. (2008). Pullout Capacity of a Reinforced Soil in Drained and Undrained Conditions. *Finite Elements in Analysis and Design*. Vol. 44, No. 9-10, pp. 525-536.

32. Jung, C.M., Bobet, A., Siddiki, N.Z., and Kim, D. (2008). Long-term Performance of Chemically-Modified Subgrade Soils in Indiana. *Transportation Research Record*, No. 2059, pp. 63-71.

33. Gur, T., Pay, A.C., Ramirez, J.A., Sozen, M.A., Johnson, A. M., Irfanoglu, A. and Bobet, A. (2009). Performance of School Buildings in Turkey during the 1999 Düzce and the 2003 Bingöl Earthquakes. *Earthquake Spectra,* Vol. 25, No. 2, pp. 239-256.

34. Bobet, A. (2009). Elastic Solution for Deep Tunnels. Application to Excavation Damage Zone and Rockbolt Support. *Rock Mechanics and Rock Engineering*, Special Issue on "Deep Tunnel: Issues in Rock Engineering", Vol. 42, No.2, pp. 147-174.

35. Bobet, A., Fakhimi, A., Johnson, S., Morris, J., Tonon, F., and Yeung, M. (2009). Numerical Models in Discontinuous Media: A review of advances for rock mechanics applications. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 11, pp. 1547-1561.

36. Park, C.H. and Bobet, A. (2009). Crack coalescence in specimens with open and closed flaws: a comparison. *International Journal of Rock Mechanics and Mining Sciences,* Vol. 46, pp. 819-829.

37. Bobet, A. (2009). Drained and Undrained Response of Deep Tunnels Subjected to Far-field Shear Loading. *Tunnelling and Underground Space Technology*. Vol. 25, pp. 21-31.

38. Bobet, A. (2010). Characteristic Curves for Deep Circular Tunnels in Poroplastic Rock. *Rock Mechanics and Rock Engineering*, Vol. 43, pp. 185-200.

39. Bobet, A. (2010). Response by the Author to: Comments on ''Characteristic Curves for Deep Circular Tunnels in Poroplastic Rock'' by G. Anagnostou and R. Schürch. *Rock Mechanics and Rock Engineering*, Vol. 43, pp. 235-239.

40. Jung, Ch., Bobet, A. and Fernandez, G. (2010). Analytical Solution for the Response of a Flexible Retaining Structure with an Elastic Backfill. *International Journal for Analytical and Numerical Methods in Geomechanics*, Vol. 34, pp. 1387-1408.

41. Bobet, A. (2010). Numerical Methods in Geomechanics. *The Arabian Journal for Science and Engineering*, Vol. 35, No. 1B, pp. 27-48. **Invited paper**.

42. Park, C.H., and Bobet, A. (2010). Crack initiation, propagation and coalescence from frictional flaws in uniaxial compression. *Engineering Fracture Mechanics*, Vol. 77, pp. 2727-2748.

43. Bobet, A. and Einstein, H.H. (2011). Tunnel Support with Point-Anchored and Grouted Rockbolts. *Tunnelling and Underground Space Technology*, Vol. 26, pp. 100-123.

44. Jung, C.M., Bobet, A., Siddiki, N.Z., and Kim, D. (2011). Post-construction Evaluation of Subgrades Chemically Treated with LKD. *ASCE Journal of Materials in Civil Engineering*, Vol. 23, No. 7, pp. 931-940.

45. Bobet, A. (2011). Lined Circular Tunnels in Transversely Anisotropic Rock at Depth. *Rock Mechanics and Rock Engineering*, Vol. 44, pp. 149-167.

46. Bobet, A., Hwang, J., Johnston, C., and Santagata, M. (2011). One-Dimensional Consolidation Behavior of Cement Treated Organic Soil. *Canadian Geotechnical Journal*, Vol. 48, pp. 1100-1115.

47. Jung, C.M., Bobet, A., and Siddiki, N.Z. (2011). Simple Method to Identify Marl Soils. *Transportation Research Record*, Vol. 2232, pp.76-84.

48. Bobet, A. (2011). Considerations for Seismic design of Cut and Cover Structures. *Geotecnia*, Sociedad Mexicana de Ingeniería Geotécnica, A.C., June-August 2011 Issue, pp. 18-25. **Invited paper**.

49. Haimson, B., and Bobet, A. (2012). Introduction to Suggested Methods for Failure Criteria. *Rock Mechanics and Rock Engineering*, Vol. 45, pp. 973-974. **Invited paper**.

50. Alejano, L., and Bobet, A. (2012). ISRM suggested method: Drucker-Prager Criterion. *Rock Mechanics and Rock Engineering*, Vol. 45, pp. 995-999. **Invited paper**.

51. Huang, P.-T., Bobet, A. and Santagata, M. (2012). Identification of Low Organic Content Soils: An Engineering Perspective Approach. *Geotechnical Testing Journal*, Vol. 35, No. 4, pp. 1-11.

52. Bobet, A. (2012). Comportamiento Sísmico de Túneles. *Revista Internacional de Desastres Naturales, Accidentes e Infraestructura Civil*, Vol. 12, No. 1, pp. 69-75. **Invited paper**.

53. Yu, H.-T., Yuan, Y., and Bobet, A. (2013). Multi-scale method for long tunnels subjected to seismic loading. *International Journal for Analytical and Numerical Methods in Geomechanics*, Vol. 37, No. 4, pp. 374-398.

54. Jung, C.M., Jung, S., Siddiki, N.Z., and Bobet, A. (2013). Field investigation of engineering properties and uniformity of subgrades chemically treated with LKD. *International Journal of Pavement Engineering*, Vol. 14, No.2, pp. 134-145.

55. El Mohtar, Ch., Bobet, A., Santagata, M.C., Drnevich, V.P., and Johnston, C. (2013). Liquefaction Mitigation using Bentonite Suspensions. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 39, No. 8, pp. 1369-1380.

56. Guo, J., Chen, J. and Bobet, A. (2013). Influence of a Subway Station on the Inter-story Drift Ratio of Adjacent Surface Structures. *Tunnelling and Underground Space Technology,* Vol. 35, pp. 8-19.

57. El Mohtar, C.S., Drnevich, V.P., Santagata, M.C. Bobet, A. (2013). Combined Resonant Column and Cyclic Triaxial Tests for Measuring Undrained Shear Modulus Reduction of Sand with Plastic Fines. *Geotechnical Testing Journal*, Vol. 36, No. 4, pp. 484-492.

58. Wang, J., Huang, H., Xie, X. and Bobet, A. (2014). Void-induced Liner Deformation and Stress Redistribution. *Tunnelling and Underground Space Technology*, Vol. 40, pp. 263-276.

59. Lee, Y.K., Bobet, A. (2014). Instantaneous Friction angle and Cohesion of 2-D and 3-D Hoek-Brown Rock Failure Criteria in terms of stress invariants. *Rock Mechanics and Rock Engineering*, Vol. 47, pp. 371-385.

60. El Mohtar, C.S., Bobet, A., Drnevich, V.P., Johnston, C., and Santagata, M.C. (2014). Pore Pressure Generation in Sand with Bentonite: from Small Strains to Liquefaction. *Géotechnique,* Vol. 64, No. 2, pp. 108-117.

61. Santagata, M.C., Clarke, J.P., Bobet, A., Drnevich, V.P., El-Mohtar, C.S., Huang, P.-T., Johnston, C.T. (2014). Rheology of concentrated bentonite suspensions treated with sodium pyrophosphate for application in mitigating earthquake-induced liquefaction. *Applied Clay Science*, Vol. 99, pp. 24-34.

62. Bobet, A., Garcia Marin, V. (2014). A Stress and Displacement Discontinuity Element Method for Elastic Transversely Anisotropic Rock. *International Journal of Numerical and Analytical Methods in Geomechanics*, Vol. 38, pp. 1898-1922.

63. Hedayat, A., Pyrak-Nolte, L. and Bobet, A. (2014). Detection and Quantification of Slip along Non-uniform Frictional Discontinuities using Digital Image Correlation. *ASTM Geotechnical Testing Journal*, Vol. 35, No. 5, doi: 10.1520/GTJ20130141.

64. Hedayat, A., Pyrak-Nolte, L. and Bobet, A. (2014). Multi-modal monitoring of slip along frictional discontinuities. *Rock Mechanics and Rock Engineering*, Vol. 47, No. 5, pp. 1575-1587. **Invited paper**.

65. Choi, M.-K., Pyrak-Nolte, L.J., and Bobet, A. (2014). The Effect of Surface Roughness and Mixed-mode Loading on the Stiffness Ratio k_x/k_y for Fractures. *Geophysics*, Vol. 79, No. 5, pp. D319-D331, doi: 10.1190/GEO2013-0438.1.

66. Hedayat, A., Pyrak-Nolte, L.J. and Bobet, A. (2014). Seismic Precursors to the Shear Failure of Rock Discontinuities. *Geophysical Research Letters*, Vol. 41, pp. 5467-5475, DOI: 10.1002/2014GL060848.

67. Bobet, A. and Yu, H. (2015). Stress Field Near the Tip of a Crack in a Poroelastic Transversely Anisotropic Saturated Rock. *Engineering Fracture Mechanics*, Vol. 141, pp. 1-18.

68. Yu, H., Chen, J., Bobet, A., and Yuan, Y. (2016). Damage observation and assessment of the Longxi tunnel during the Wenchuan earthquake. *Tunnelling and Underground Space Technology*, Vol. 54, pp. 102-116.

69. Bobet, A. and Yu, H. (2016). Full Stress and Displacement Fields for Steel-Lined Deep Pressure Tunnels in Transversely Anisotropic Rock. *Tunnelling and Underground Space Technology*, Vol. 56, pp. 125-135.

70. Bobet, A. (2016). Lined Circular Tunnels in Transversely Anisotropic Rock at Depth: Complementary Solutions. *Rock Mechanics and Rock Engineering*, Vol. 49, No. 9, pp. 3817-3822.

71. Yan, X., Yuan, J., Yu, H., Bobet, A., and Yuan, Y. (2016). Multi-point Shaking Table Test Design for Long Tunnels under Non-uniform Seismic Loading. *Tunnelling and Underground Space Technology*, Vol. 59, pp. 114-126.

72. Santagata, M., Ochoa-Cornejo, F., Bobet, A., Johnston, C.T., and Sinfield, J.V. (2016). Cyclic behavior and pore pressure generation in sands with laponite, a superplastic nanoparticle. *Soil Dynamics and Earthquake Engineering*, Vol. 88, pp. 265-279.

73. Bobet, A. (2016). Deep Tunnel in Transversely Anisotropic Rock with Groundwater Flow. *Rock Mechanics and Rock Engineering,* Vol. 49, No. 12, pp. 4817-4832.

74. Tao, F. and Bobet, A. (2016). Effect of Temperature on Deep Lined Circular Tunnels in Transversely Anisotropic Elastic Rock. *Underground Space*, Vol. 1, pp. 79-93.

75. Tang, H.M., Huang, L., Bobet, A., EzEldin, M.A.M., Wang, L.Q., Wu, Y.P. and Hu, X.L. (2016). Identification and Mitigation of Error in the Terzaghi Bias Correction for Inhomogeneous Material Discontinuities. *Strength of Materials*, Vol. 48, No. 6, pp. 825-833.

76. Ma, J., Tang, H., Hu, X., Bobet, A., Zhang, M., Zhu, T., Song, Y., and Ez Eldin, M.A.M. (2017). Identification of Causal Factors for the Majiagou Landslide using

Modern Data Mining Methods. *Landslides*, Vol. 14, No.1, pp. 311-322, DOI:10.1007/s10346-016-0693-7.

77. Ma, J., Tang, H., Hu, X., Bobet, A., Yong, R., Ez Eldin, M.A.A. (2017). Model Testing of the Spatial-Temporal evolution of a Landslide Failure. *Bulletin of Engineering Geology and the Environment*, Vol. 76, No. 1, pp. 323-339, DOI: 10.1007/s10064-016-0884-4.

78. Blair, D., Chappaz, L., Sood, R., Milbury, C., Bobet, A., Melosh, J., Howell, K., and Freed, A. (2017). The Structural Stability of Lunar Lava Tubes. *Icarus*, Vol. 282, pp. 47-55.

79. Khasawneh, Y., Bobet, A., and Frosch, R. (2017). A Simple Soil Model for Low Frequency Cyclic Loading. *Computers and Geotechnics*, Vol. 84, pp. 225-237.

80. Santagata, M., Ochoa-Cornejo, F., Bobet, A., Johnston, C. and Sinfield, J. (2017). Discussion on "Laboratory investigation of liquefaction mitigation in silty sand using nanoparticles" [Eng.Geol.204:23-32]. *Engineering Geology*, Vol. 216, pp. 161-164.

81. El Howayek, A., Santagata, M.C. and Bobet, A. (2017). Geologic origin effects on mineralogy, index properties and fabric of a fine-grained carbonatic deposit. *Engineering Geology*, Vol. 216, pp. 108-121.

82. Modiriasari, A., Bobet, A. and Pyrak-Nolte, L.J. (2017). Active Seismic Monitoring of Crack Initiation, Propagation, and Coalescence in Rock. *Rock Mechanics and Rock Engineering*, Vol. 50, No. 9, pp. 2311-2325, https://doi.org/10.1007/s00603-017-1235-x

83. Sandoval, E. and Bobet, A. (2017). Effect of frequency and flexibility ratio on the seismic response of deep tunnels. *Underground Space*, Vol. 2, No. 2, pp. 125-133.

84. Yu, H., Yuan, Y. and Bobet, A. (2017). Seismic Analysis of Long Tunnels: A review of simplified and unified methods. *Underground Space*, Vol. 2, No. 2, pp. 73-87.

85. Bobet, A. and Yu, H. (2017). Seismic Distortions of a Deep Circular Tunnel in Elastic Slightly Anisotropic Ground. *Underground Space*, Vol. 2, No.2, pp134-147.

86. Vitali, O., Bobet, A., Celestino, T. (2018). 3D Finite Element Modeling Optimization for Deep Tunnels with Material Nonlinearity. *Underground Space*, Vol. 3, No. 2, pp. 125-139.

87. Yu, H., Zhang, Z., Chen, J., Bobet, A., Zhao, M. and Yuan, Y. (2018). Analytical solution for longitudinal seismic response of tunnel liners with sharp stiffness transition. *Tunnelling and Underground Space Technology*, Vol. 77, pp. 103-114.

88. Yu, H., Yan. X., Bobet, A., Yuan, Y., Xu, G., and Su, Q. (2018). Multi-point shaking table test of a long tunnel subjected to non-uniform seismic loadings. *Bulletin of Earthquake Engineering*, Vol. 16, No. 2, pp. 1041-1059.

89. El Howayek, A., Bobet, A. and Santagata, M. (2018). Microstructure and cementation of two carbonatic fine-grained soils. *Canadian Geotechnical Journal*, Vol. 56, No. 3, pp. 320-334. https://doi.org/10.1139/cgj-2018-0059.

90. Vitali, O., Celestino, T. and Bobet, A. (2018). Analytical solution for tunnels not aligned with geostatic principal stress directions. *Tunnelling and Underground Space Technology*, Vol. 82, pp. 394-405.

91. Modiriasari, A., Pyrak-Nolte, L.J. and Bobet, A. (2018). Emergent Wave Conversion as a Precursor to Shear Crack Initiation. *Geophysical Research Letters*, Vol. 45, pp. 9516-9522. DOI: 10.1029/2018GL078622.

92. Ochoa-Cornejo, F., Bobet, A., Johnston, C., Santagata, M. and Sinfield, J.V. (2019). Dynamic Properties of a Sand-Nanoclay Composite. *Géotechnique*, https://doi.org/10.1680/jgeot.18.P.017.

93. Vitali, O., Celestino, T. and Bobet, A. (2019). Buoyancy effect on shallow tunnels. *International Journal of Rock Mechanics and Mining Sciences*, Vol. 114, pp. 1-6.

94. Yu, H., Cai, Ch., Bobet, A. and Yuan, Y. (2019). Analytical Solution for Longitudinal Bending Stiffness of Shield Tunnels. *Tunnelling and Underground Space Technology*, Vol. 83, pp. 27-34.

95. Vitali, O., Celestino, T. and Bobet, A. (2019). Shallow tunnels misaligned with geostatic principal stress directions: analytical solution and 3D face effects. *Tunnelling and Underground Space Technology*, Vol. 89, pp. 268-283, https://doi.org/10.1016/j.tust.2019.04.006

96. Theinat, A. K., Modiriasari, A., Bobet, A., Melosh, H. J., Dyke, S. J., Ramirez, J., Maghareh, A. and Gomez, D. (2019). Lunar Lava Tubes: Morphology to Structural Stability, *Icarus,* Vol. 338, Article 113442, https://doi.org/10.1016/j.icarus.2019.113442

97. Chen, J., Yuan, Y., Bobet, A. and Yu, H. (2019). Shaking table tests of transition tunnel connecting TBM and drill-and-blast tunnels. *Tunnelling and Underground Space Technology*, Vol. 96, Article 103197 , https://doi.org/10.1016/j.tust.2019.103197.

98. Modiriasari, A., Pyrak-Nolte, L.J. and Bobet, A. (2020). Seismic Wave Conversion caused by Shear Crack Initiation and Growth. *Rock Mechanics and Rock Engineering,* accepted.

99. Sandoval, E and Bobet, A. (2019). Seismic response of underground structures under undrained loading with excess pore pressures accumulation. *Tunnelling and Underground Space Technology*, https://doi.org/10.1016/j.tust.2019.103255

100. Jiang, L., Yoon, H., Bobet, A. and Pyrak-Nolte, L. (2020). 3D Printed Rock: Mineral Fabric as a Hidden Variable in Fracture Formation. *Scientific Reports*, Vol. 10, No. 2260, 9 pp., https://doi.org/10.1038/s41598-020-58793-y

101. Vitali, O., Celestino, T. and Bobet, A. (2019). Tunnel misalignment with geostatic principal stress directions in anisotropic rock masses. *Soils and Rocks*, accepted.

102. Tsinidis, G., de Silva, F., Anastasopoulos, I., Bilotta, E., Bobet, A., Hashash, Y., He, Ch., Kampas, G., Knappett, J., Madabhushi, G., Nikitas, N., Pitilakis, K., Silvestri, F., Viggiani, G. and Fuentes, R. (2020). Seismic behaviour of tunnels: from experiments to analysis. *Tunnelling and Underground Space Technology*, Vol. 99, https://doi.org/10.1016/j.tust.2020.103334.

Conference proceedings.

1. Rodríguez-Miranda, M.A., Pascual, F., and Bobet, A. (1986). "Diseño, Construcción y Comportamiento de Rellenos de Tipo Sandwich en la Autopista Bilbao-Behovia" [Design, Construction and Behavior of Sandwich Type Embankments in the Bilbao-Behovia Highway]. *Simposio de terraplenes, pedraplenes y otros rellenos*, Madrid.

2. Bobet, A., and Einstein, H.H. (1996). "Fracture Coalescence in Rock Material under Uniaxial and Biaxial Loading". *Proceedings of the 2nd North American Rock Mechanics Symposium: NARMS'96,* Montreal, pp. 1603-1609.

3. Einstein, H.H., and Bobet, A. (1997). "Mechanized Tunneling in Squeezing Ground - From Basic Thoughts to Continuous Tunneling". *Proceedings of the World Tunnel Congress '97*. Vienna, Austria, pp. 619-632.

4. Sagong, M. and Bobet, A. (2000). Coalescence of Multiple Flaws in Uniaxial Compression. *Proceedings of the North American Rock Mechanics Symposium: Pacific Rocks 2000*, pp. 1203-1210.

5. Loukidis, D., Salgado, R., and Bobet, A. (2001). Seismic design of Pile Foundations in Southern Indiana. *Proceedings: Fourth International Conference on recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics Symposium in Honor of Professor W.D. Liam Finn*. Paper No. 8.09, pp. 1-6.

6. Bobet, A. (2001). Numerical solution of initiation of tensile and shear cracks. *Proceedings of the 38th U.S. Rock Mechanics Symposium*, pp.731-738.

7. Bobet, A. (2002). Mechanically Anchored Rockbolts in Tunnels in Saturated Ground. *Proceedings of the North American Rock Mechanics Symposium: NARMS-TAC 2002*, pp. 797-804.

8. Sagong, M. and Bobet, A. (2003). Micro-fractographic Characterization of Tensile and Shear Cracks. *Proceedings of the Soil and Rock America 2003 Symposium*, pp. 937-944.

9. Hwang, J., Bobet, A. and Santagata, M. (2003). Laboratory Evaluation of the Compressibility of a Highly Organic Soil. *Great Lakes Geotechnical and Geoenvironmental Conference: Advances in Characterizing and Engineering Problem Soils*. Paper # 6.

10. Haldavnekar, V., Bobet, A., Santagata, M., and Drnevich, V. (2003). Soil Treatment with a Thixotropic Fluid: An Autoadaptive Design for Liquefaction Prevention. *Proceedings of the 11th International Conference on Soil Dynamics & Earthquake Engineering and 3rd International Conference on Earthquake Geotechnical Engineering*, Vol. II, pp. 553-560.

11. Huo, H., Bobet, A., Fernández, G., and Ramírez, J. (2003). Seismic Evaluation of the failure of the Daikai Station During the Kobe Earthquake. *Proceedings of the 11th International Conference on Soil Dynamics & Earthquake Engineering and 3rd International Conference on Earthquake Geotechnical Engineering*, Vol. II, pp. 758-765.

12. Mutlu O., Bobet A. (2004). Slip on Non-Homogeneous Discontinuities. *Proceedings of the 6th North America Rock Mechanics Symposium (NARMS)*, Houston, Texas, June 2004, Paper No. 04-506, 9 pages.

13. Gur, T., Ramirez, J.A., Sozen, M.A., Pay, A.C., Johnson, A.M., Bobet, A., Matamoros, A., Irfanoglu, A., And Akin, L. (2004). Performance of School Buildings in Bingöl during the 1 May 2003 Earthquake. *13th World Conference on Earthquake Engineering*, Vancouver, B.C., Canada. August 1-6, 2004. Paper No. 1450, 15 Pages.

14. The Joint Turkey and US Field Reconnaissance Team (2004). The 1 May 2003 Bingöl earthquake: Summary of damage Assessment to private and Public Buildings by a Joint Team of Turkey and the USA. *13th World Conference on Earthquake Engineering*, Vancouver, B.C., Canada. August 1-6, 2004. Paper No. 1017, 15 Pages.

15. Bobet, A. and Einstein, H.H. (2004). Crack Coalescence in Brittle Material - An Overview of current Knowledge. *EUROCK Conference*, Salzburg, Austria, pp. 475-478.

16. Fang, C., Haddock, J. and Bobet, A. (2004). 3D Finite Element Study on Contributions of Load Transfer at Concrete Pavement Joint. *Computational Mechanics Conference*, Tsinghua University Press & Springer-Verlag, 10 pp.

17. Mutlu, O. and Bobet, A. (2005). A Fracture Mechanics Approach to Slip along Frictional Discontinuities. *U.S. Rock Mechanics Symposium*, paper 05-685, 10 pp.

18. Bobet, A., Fernandez, G., Ramirez, J., and Huo, H. (2006). A Practical method for Assessment of Seismic-Induced Deformations of Underground Structures. *GeoCongress 06*. CD ROM Proceedings, 6 pp.

19. Park, C.H., and Bobet, A. (2006). The Initiation of Slip on Frictional Fractures. *41st U.S. Rock Mechanics Symposium*, Golden, CO. Paper 06-923, 9 pages.

20. Park, C.H., and Bobet, A. (2007). Crack Initiation and propagation from frictional fractures. *1st Canada – US Rock Mechanics Symposium*, pp. 557-564.

21. Chou, Y.L. and Bobet, A. (2008). Stresses around Unsupported Tunnels. *ASCE Geocongress 08*.

22. Bobet, A. and Einstein, H.H. (2008). Deep Tunnels in Clay Shales: Evaluation of Key Properties for Short and Long Term Support. *ASCE Geocongress 08*.

23. Jung, C.M. and Bobet, A. (2008). Seismic Earth Pressures Behind Retaining Walls: Effects of Rigid-body Motions. *ASCE Geotechnical Earthquake Engineering and Soil Dynamics Conference*. GSP-181, CD-ROM Proceedings, 11 pp.

24. El-Mohtar, C., Bobet, A., Santagata, M., Drnevich, V., and Johnston, C. (2008). Cyclic Response of Sand with Thixotropic Pore Fluid. *ASCE Geotechnical Earthquake Engineering and Soil Dynamics Conference (IV GEESD). GSP*-181, CD-ROM Proceedings, 10 pp.

25. Jung, C.M., Bobet, A., Siddiki, N.Z., and Kim, D. (2008). Long-term Performance of Lime-Modified Subgrade Soils in Indiana. *Transportation Research Board Conference*. *Proceedings of the 87th Annual Meeting*. Washington DC, 21 pp.

26. Park, C.H., and Bobet, A. (2008). Numerical modeling of fracturing in a rock model material with pre-existing flaws. *Proceedings of the 42nd US Rock Mechanics Symposium and 2nd U.S.-Canada Rock Mechanics Symposium*, Paper No. ARMA 08-134, 9 pp.

27. Mutlu, O. and Bobet, A, (2008). The onset of slip on frictional discontinuities in brittle materials. *Proceedings of Research Symposium on Characterization and Behavior of Interfaces (CBI)*. J.D. Frost editor. 2010 IOS Press, Amsterdam, The Netherlands, pp. 71-77.

28. El-Mohtar, C., Santagata, M., Bobet, A., Drnevich, V., and Johnston, C. (2008). Effect of Plastic Fines on the Small Strain Stiffness of Sand. *IS-Atlanta: Fourth*

International Symposium, Deformation Characteristics of Geomaterials. Burns et al. (Eds.), IOS Press, Netherlands, Vol. 1, pp. 245-251.

29. Bobet, A. (2009). La Falla de la Estación de Daikai. *IV Congreso Iberoamericano de Ingenieria Civil*. **Keynote Speaker**. Foundation of Civil Engineers of Venezuela (FUNDAVIC). Mérida, Venezuela. Paper A.1.

30. Jung, C.M., Siddiki, N.Z., and Bobet, A. (2010). Geotechnical Characteristics and Classification of Marl Soils. *Proceedings of the 90th Annual Meeting of the Transportation Research Board*, Paper Number 11-0021, Session AFP20, 18 pp.

31. Bobet, A., Pyrak-Nolte, L., Choi, M.-K., and Hedayat, A. (2011). Mechanical and Geophysical Characterization of damage in Anisotropic Rock. *Proceeding of the NSF CMMI Grantees*. Atlanta, January 4-7.

32. Bobet, A., Einstein, H., Glaser, S., Laughton, Ch., Wang, J.S.Y., and Hladysz, Z.J. (2011). Engineering Research at the United States Deep Underground Science and Engineering Laboratory, in the Footprint of the Homestake Mine. *Proceedings of SME*.

33. Witthoeft, A.F., Santagata, M.C., and Bobet, A. (2012). Numerical Study of the Effects of Bentonite Treatment for Liquefaction Mitigation. *Geocongress 2012 – State of the Art and Practice in Geotechnical Engineering*, Oakland, California. CD-ROM Proceedings.

34. Hedayat, A., Bobet, A., and Pyrak-Nolte, L.J. (2012). Monitoring slip initiation and propagation along frictional interfaces with seismic wave transmission. *Proceedings of the 46th US Rock Mechanics/Geomechanics Symposium*, Chicago IL. CD-ROM.

35. Choi, M.K., Pyrak-Nolte, L.J., and Bobet, A. (2012). Seismic Detection of Flow Paths in a Air-Filled Fracture under Stress. *Proceedings of the 46th US Rock Mechanics/Geomechanics Symposium*, Chicago IL. CD-ROM.

36. Hedayat, A., Pyrak-Nolte, L.J., and Bobet, A. (2013). Multi-modal monitoring of slip along frictional discontinuities. *47th US Rock Mechanics / Geomechanics Symposium* held in San Francisco, CA, USA, 23-26 June 2013, paper 13-298.

37. Choi, M.K., Pyrak-Nolte, L.J., and Bobet, A. (2013). Relationship between Shear and Normal Stiffness in a Fracture Subjected to Mixed-Mode Loading. *47th US Rock Mechanics / Geomechanics Symposium* held in San Francisco, CA, USA, 23-26 June 2013, Paper 13-405.

38. El Howayek, A., Bobet, A., Johnston, C., Santagata, M., and Sinfield, J. (2014). Microstructure of Sand-Laponite-Water Systems using Cryo-SEM. *2014 Geo-Congress: Geo-Characterization and Modeling for Sustainability*, Atlanta, GA. Accepted.

39. Ochoa-Cornejo, F., Bobet, A., Johnston, C.T., Santagata M. and Sinfield, J.V. (2014). Liquefaction 50 years AFTER Anchorage 1964; how nanoparticles could prevent it. *Tenth U.S. National Conference on Earthquake Engineering. Frontiers of Earthquake Engineering*, Anchorage, Alaska. Accepted.

40. Hedayat, A., Pyrak-Nolte, L.J. and Bobet, A. (2014). Geophysical Investigation of Shear Failure along Cohesive-Frictional Rock Discontinuities. *48th US Rock Mechanics / Geomechanics Symposium* held in Minneapolis, MN, USA, 1-4 June 2014, Paper 14-143.

41. Santagata, M., Bobet, A., El Howayek, A., Ochoa, F., Sinfield, J.V., and Johnston, C.T. (2014). Building a Nanostructure in the Pore Fluid of Granular Soils. *International Symposium of Geomechanics from Micro to Macro*, IS-Cambridge 2014, Cambridge, UK, 1-3 September 2014.

42. Blair, D.M., Chappaz, L., Sood, R., Milbury, C., Bobet, A., Melosh, H.J., Howell, K.C. and Freed, A.M. (2015). Determining the Structural Stability of Lunar Lava Tubes. *46th Lunar and Planetary Science Conference*, March 16-20, The Woodlands, Texas.

43. Sandoval, E. and Bobet, A. (2015). Undrained seismic response of underground structures. *6th International Conference on Earthquake Geotechnical Engineering*, 1-4 November 2015. Christchurch, New Zealand.

44. Blair, D.M., Chappaz, L., Sood, R., Milbury, C., Bobet, A., Melosh, H.J., Howell, K.C. and Freed, A.M. (2015). Modeling the Structural Stability of Lunar Lava Tubes. *2nd International Planetary Caves Conference*, October 20-23, Flagstaff, Arizona.

45. Modiriasari, A., Bobet, A., and Pyrak-Nolte, L.J. (2015). Monitoring of Mechanically-Induced Damage in Rock using Transmission and Reflection Waves. *49th US Rock Mechanics / Geomechanics Symposium* held in San Francisco, CA, USA, 28 June-1 July, Paper 15-245.

46. Borela, R., Bobet, A. and Ellett, K. (2016). Numerical Modeling of Desiccation and Tectonic Processes as Driving Mechanisms for Macro-Polygon Formation. *The Geological Society of America, North-Central Section - 50th Annual Meeting* (18–19 April 2016).

47. Modiriasari, A., Bobet, A., and Pyrak-Nolte, L.J. (2016). Monitoring Rock Damage caused by Cyclic Loading using Seismic wave Transmission and Reflection. *50th US Rock Mechanics / Geomechanics Symposium* held in Houston, TX, USA, 26-29 June, Paper 16-569.

48. Johnston, C.T., Sasar, M., Santagata, M., Bobet, A., Duan, L., and Kaminsky, H.A. (2016). Polymer-MFT Interactions: from Surface Chemistry to Rheology.

International Oil Sands Tailings Conference 2016, December 4-7, Lake Louise, AB, Canada.

49. Bobet, A. (2016). Respuesta Sísmica de Túneles. *18 Convención Científica de Ingeniería y Arquitectura*, La Habana, Cuba, 21-25 November, 2016, paper No. 3CIIC37, 11 pp.

50. De Melo Moura, D. and Bobet, A. (2017). Crack Coalescence in Rock-Model Materials through a Frictional Interface. *51st US Rock Mechanics / Geomechanics Symposium* held in San Francisco, CA, USA, 25-28 June, Paper 17-504.

51. Modiriasari, A., Bobet, A. and Pyrak-Nolte, L.J. (2017). Use of Seismic Wave Conversions (S-to-P wave) to Monitor Shear Crack Growth. *51st US Rock Mechanics / Geomechanics Symposium* held in San Francisco, CA, USA, 25-28 June, Paper 17-411.

52. Jiang, L., Modiriasari, A., Bobet, A. and Laura J Pyrak-Nolte, L.J. (2017). P-S & S-P Elastic Wave Conversions from Linear Arrays of Oriented Microcracks. Abstract No. H13A-1343 presented at *Fall Meeting AGU* (American Geophysical Union), New Orleans, LA,11-15 December.

53. Modiriasari, A., Jiang, L., Yoon, H. Bobet, A. and Laura J Pyrak-Nolte, L.J. (2017). Effect of Layering on Cracking Initiation and Propagation under Uniaxial Compression. Abstract No. H13A-1344 presented at *Fall Meeting AGU* (American Geophysical Union), New Orleans, LA,11-15 December.

54. Bobet, A., Modiriasari, A., and Laura J Pyrak-Nolte, L.J. (2017). Detection and monitoring of shear crack growth using S- P conversion of seismic waves. Abstract No. MR42A-07 presented at *Fall Meeting AGU* (American Geophysical Union), New Orleans, LA,11-15 December.

55. Blain, Ch. A., Ramirez, J. A., Bobet, A., Browning, J., Edge, B., Holmes, W., Johnson, D., Robertson, I., Smith, T., Zuo, D. (2017). NHERI: Advancing the Research Infrastructure of the Multi-Hazard Community. Abstract No. NH33C-05 presented at *Fall Meeting AGU* (American Geophysical Union), New Orleans, LA,11-15 December.

56. Maghareh, A., Gomez, D., Dyke, S. J., Bobet, A., Ramirez, J., Melosh, H. J., Modiriasari, A., and Theinat, A. (2018). Resilience for Permanent Extraterrestrial Habitats. *49th LPSC, Lunar and Planetary Science Conference*, The Woodlands, Texas.

57. Dyke, S. J., Bobet, A., Ramirez, J., Melosh, H. J., Gomez, D., Maghareh, A., Modiriasari, A. and Theinat, A. (2018). Resilient Extraterrestrial Habitat Engineering. *49th LPSC, Lunar and Planetary Science Conference*, The Woodlands, Texas.

58. Theinat, A., Modiriasari, A., Bobet, A., Melosh, J., Dyke, S., Ramirez, J., Maghareh, A. and Gomez, D. (2018). Geometry and Structural Stability of Lunar Lava Tubes. *2018 AIAA SPACE and Astronautics Forum and Exposition*, Orlando, FL. https://arc.aiaa.org/doi/abs/10.2514/6.2018-5185

59. Santagata, M., Bobet, A. and El Howayek, A. (2018). Characterization of a carbonatic deposit across scales. *IS Atlanta 2018 & B2G Atlanta 2018*, Atlanta, FL.

60. Modiriasari, A. and Bobet, A. (2018). Detección de Fracturas por Métodos Geofísicos. *19 Convención Científica de Ingeniería y Arquitectura*, La Habana, Cuba, 26-30 November, 2018, paper 4CIIC-30.

61. Modiriasari, A., Theinat, A., Bobet, A., Melosh, H.J., Dyke, S.J., Ramirez, J., Maghareh, A., Gomez, D. (2018). Size and structural stability assessment of lunar lava tubes. *49th Lunar and Planetary Science Conference*, The Woodlands, Texas, March-2018.

62. Sandoval, E. and Bobet, A. (2019). Drained and Undrained Seismic Response of Underground Structures. *WTC2019, 2019 World Tunnel Congress*, Naples, Italy, May 3-9, accepted.

63. Sandoval, E., Nantung, T.E., and Bobet, A. (2019). Subgrade Stabilization and Alternatives and Their Application to the MEPDG in Indiana. *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, TRB Paper - 19-05494R1.

64. Vitali, O., Celestino, T. and Bobet, A. (2019). Shallow Tunnel not aligned to the geostatic principal stress directions, *ASCE Geocongress 2019*, Philadelphia, March 24-27, 2019, accepted.

65. Jiang, L., Yoon, H., Bobet, A. and Pyrak-Nolte, L. (2019). Unconfined Compressive Strength of Additive Manufactured Layered Rocks with Oriented Texture. *20th International Conference on Finite Elements in Fluids*, Chicago, IL, accepted.

66. Jiang, L., Yoon, H., Bobet, A. and Pyrak-Nolte, L. (2019). Monitoring Fracture Formation in Additively Manufactured Anisotropic Rocks. *9th International Conference on Acoustic Emission and 61th Acoustic Emission Working Group Meeting 2019*, Chicago, IL, accepted.

67. Sandoval, E. and Bobet, A. (2019). Respuesta Sísmica de Estructuras Subterráneas / Seismic Response of Underground Structures. *IX Congreso Nacional de Ingeniería Sísmica*, Santiago de Cali, Colombia, May 29-31, accepted.

68. Modiriasari, A., Theinat, A.K., Melosh, H.J., Bobet, A., Dyke, S.J., Ramirez, J., Maghareh, A., and Gomez, D. (2019). "Stability of Lunar Lava Tubes as Permanent ExtraTerrestrial Habitats". *International Space Development Conference, Back To The Moon To Stay (ISDC2019)*, Arlington, VA, June 6-9, submitted.

69. Jiang, L., Yoon, H., Bobet, A. and Pyrak-Nolte, L. (2019). Effect of Mineral Orientation on Roughness and Toughness of Mode I Fractures. *53rd US Rock Mechanics / Geomechanics Symposium* held in New York, NY, USA, 23-26 June, Paper 19-483, submitted.

70. El Fil, H., Bobet, A., Pyrak-Nolte, L.J. (2019). Mechanical and Geophysical Monitoring of Slip Along Frictional Fractures. *53rd US Rock Mechanics / Geomechanics Symposium* held in New York, NY, USA, 23-26 June, Paper 19-449, accepted.

71. De Melo Moura, D. and Bobet, A. (2019). Influence of Flaw Geometry on Crack Coalescence across an Interface in a Rock Model Material. *53rd US Rock Mechanics / Geomechanics Symposium* held in New York, NY, USA, 23-26 June, Paper 19-388, submitted.

72. Modiriasari, A., Theinat, A.K., Melosh, H.J., Bobet, A. (2019). Stability Analysis of Lunar Lava Tubes for Permanent ExtraTerrestrial Habitation". *53rd US Rock Mechanics / Geomechanics Symposium* held in New York, NY, USA, 23-26 June, Paper 19-387, accepted.

73. Theinat, A.K., Modiriasari, A., Bobet, A., Melosh, H.J., Dyke, S.J., Ramirez, J. Choi, J., Maghareh, A. and Gomez, D. (2019). Geology Explorations of Lava Tubes in the National Beds Lava Monuments. *Proceedings of the 50th Lunar and Planetary Science Conference*, The Woodlands, Texas, March 2019.

74. Modiriasari, A., Boener, A., Theinat, A.K., Bobet, A., Melosh, H.J., Dyke, S.J., Ramirez, J., Maghareh, A. and Gomez, D. (2019). Effect of Induced Seismicity of Indirect Meteorite Impacts on the Stability of Lunar Lava Tubes. *Proceedings of the 50th Lunar and Planetary Science Conference*, The Woodlands, Texas, March 2019.

75. Maghareh, A., Lenjani, A., Dyke, S., Marais, K., Bobet, A., Ramirez, J., Whitaker, D., Modiriasari, A. and Theinat, A. (2019). Design Framework for Resilient Extraterrestrial Habitats. *Engineering Mechanics Institute Conference 2019*, Caltech., CA, June 18-21, 2019. Accepted.

76. Vitali, O., Celestino, T. and Bobet, A. (2019). Progressive failure due to tunnel misalignment with geostatic principal stresses. *ISRM 14th International Congress of Rock Mechanics*, Iguassu Falls, Brazil, September 13-18, 2019. Accepted.

77. Maghareh, A., Lenjani, A., Dyke, S., Marais, K., Whitaker, D., Bobet, A., Ramirez, J., Melosh, H., Modiriasari, A. and Theinat, A. (2019). Resilience-oriented Design of Extraterrestrial Habitat Systems. *AIAA Propulsion and Energy Forum and Exposition*, 19-22 August, Indianapolis, IN.

78. Jiang, L., Yoon, H., Bobet, A. and Pyrak-Nolte, L. (2019). Mixed-Mode Fracture Propagation in Layered Printed Rocks with Oriented Texture. *American Geophysical Union*, 9-13 December, 2019, San Francisco, CA.

79. Bobet, A., Morris, J.P., Yoon, H. and Pyrak-Nolte, L. (2019). Damage Mechanics Challenge: Simulation of Failure Load and Crack Geometry. *American Geophysical Union*, 9-13 December, 2019, San Francisco, CA.

80. Pyrak-Nolte, L., Jiang, L., Modiriasari, A., Yoon, H. and Bobet, A. and (2019). Translating the Micro-scale to the Macro-Scale: Signatures of Fracture Evolution. *ISRM 14th International Congress of Rock Mechanics*, Iguassu Falls, Brazil, September 13-18, 2019. Keynote paper.

81. Sandoval, E.A. and Bobet, A. (2019). Comportamiento sísmico de túneles bajo carga drenada y no drenada. *Primer Congreso Internacional de Ingeniería Vial*, Universidad del Cauca, Popayán, Colombia, October 2-4, 2019. Accepted.

82. De Melo Moura, D. and Bobet, A. (2019). Cracking across a Smooth Interface in a Rock-Model Material. *ISRM 14th International Congress of Rock Mechanics*, Iguassu Falls, Brazil, September 13-18, 2019. Accepted.

83. Sandoval, E.A. and Bobet, A. (2019). Undrained Seismic Response of Tunnels. *IS-Cambridge 2020: 10th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground: 29 and 30 June 2020*. Cambridge, UK. Accepted.

Books/ Edited Books

1. Bobet, A., Ewy, R., Gadde, M., Labuz, J., Pyrak-Nolte, L., Tutuncu, A., Westman, E. (2012). *Proceedings of the 46th US Rock Mechanics/Geomechanics Symposium*. ARMA, 24-27 June 2012, Chicago, Il.
2. Bobet, A. (2013). Editor, *Special Issue of Rock Mechanics and Rock Engineering: 46th US Rock Mechanics and Geomechanics Symposium*.
3. Bobet, A. (2017). Seismic Response of Tunnels. Editor of Special Issue. *Underground Space*, Vol. 2, No. 2, pp. 73-147.
4. Bobet, A., Arson, C., Elsworth, D. Nelson, P., Tomac, I. and Modiriasari, A. (2018). The Role of Rock Mechanics in the 21st Century, in *Geotechnical Fundamentals for Addressing New World Challenges*, Springer, ISBN 978-3-030-06249-1.

Other publications

1. Einstein, H.H., Bobet, A. and Aristorenas, G. (1995). "Feasibility Study Opalinuston", for NAGRA (Nationale Gesellschaft für die Lagerung radioaktiver Abfälle), Switzerland. *M.I.T. Internal Report.*

2. Einstein, H.H., Bobet, A. and Vinard, P. (1997). "Study of the underpressures at Wellenberg", for NAGRA (Nationale Gesellschaft für die Lagerung radioaktiver Abfälle), Switzerland. *M.I.T. Internal Report*.

3. Bobet A. (1997). *Fracture Coalescence in Rock Materials: Experimental Observations and Numerical Predictions*. Sc.D. Thesis, Massachusetts Institute of Technology, Cambridge, Massachusetts.

4. Bobet, A., Salgado, R. and Loukidis, D. (2000). Seismic Design of Deep Foundations. Report No. FHWA/IN/JTRP-2000/22 for the Joint Transportation Research Program.

5. Asyn, J. and Bobet, A. (2001). Guidelines for Use and Types of Retaining Devices. Report No. FHWA/IN/JTRP-2001/28 for the Joint Transportation Research Program.

6. Bobet, A. and Huo, H. (2002). Bearing Capacity of 42 inch (1050 mm) Polyethylene Pipe, for Advanced Drainage Systems, Inc., Indianapolis, IN.

7. Lee, H.S. and Bobet, A. (2002). Design of MSE Walls for Fully Saturated Conditions. Report No. FHWA/IN/JTRP-2002/13 for the Joint Transportation Research Program.

8. Santagata M.C. and Bobet, A. (2002). The use of cement kiln dust (CKD) for subgrade stabilization/modification. Report to Indiana Department of Transportation and Lehigh Portland Cement Company.

9. Bobet, A., Drnevich, V.P., and Santagata, M.C. (2003). Soil Treatment with Thixotropic Fluids: An Autoadaptive Design for Liquefaction Prevention. Final Report, National Science Foundation.

10. Ramirez, J. and Bobet, A. (2003). Performance Based Seismic Evaluation of Underground Structures. Final Report, National Science Foundation.

11. Hwang, J., Humphrey, A., Bobet, A. and Santagata, M. (2004). Stabilization and Improvement of Organic Soils. Report FHWA/IN/JTRP-2004/38 for the Joint Transportation Research Program.

12. Huang, P.-T., Santagata, M.C., and Bobet, A. (2006). Classification or Organic Soils. Report FHWA/IN/JTRP-2006/35 for the Joint Transportation Research Program.

13. Jung, Ch. And Bobet, A. (2007). Post-Construction Evaluation of Lime-treated Soils. Report FHWA/IN/ JTRP-2007/36 for the Joint Transportation Research Program.

14. Bobet, A., Drnevich, V.P., and Santagata, M.C. (2008). Soil Treatment with Thixotropic Fluids: An Autoadaptive Design for Liquefaction Prevention. Final Report, National Science Foundation.

15. Jung, Ch., Bobet, A. and Zia Siddiki, N. (2009). Classification of Marl Soils. Report FHWA/IN/ JTRP-2009/ for the Joint Transportation Research Program.

16. Jung, Ch., Jung, S., Bobet, A. and Zia Siddiki, N. (2009). Field Investigation of Subgrade Lime Modification. Report FHWA/IN/ JTRP-2009/ for the Joint Transportation Research Program.

17. Bobet, A. and Smeallie, P. (2009). Commentary: The U.S. Rock Mechanics Educational Infrastructure. Geo-Strata, ASCE Geo-Institute, pp. 16-17.

18. Bobet, A. (2012). The 46th US Rock Mechanics/Geomechanics Symposium. ARMA e-Newsletter, Vol. II, No. 3, pp. 3-4.

19. El Howayek, A., A. Bobet, S. Dawood, A. Ferdon, M. Santagata, and N. Z. Siddiki (2012). *Project Implementation: Classification of Organic Soils and Classification of Marls—Training of INDOT Personnel*. Publication FHWA/IN/JTRP-2012/22. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. doi: 10.5703/1288284314984.

20. Frosch, R. J., Bobet, A., & Khasawneh, Y. (2014). *Reduction of bridge construction and maintenance costs through coupled geotechnical and structural design of integral abutment bridges* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2014/06). West Lafayette, IN: Purdue University. http://dx.doi.org/10.5703/1288284315500.

21. Bobet, A., Calderón, C., Contreras, M.I., Gómez, R., Herrero, J.E., Jainaga, I.P., and Navarro, I. (2015). *Experiencias de Ingenieros de Caminos en el exterior: Estados Unidos*. Colegio de Ingenieros de Caminos, Canales y Puertos, Demarcación de Madrid, Madrid, Spain.

22. El Howayek, A., Santagata, M., Bobet, A., and Siddiki, N. Z. (2015). Engineering properties of marls (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/11). West Lafayette, IN: Purdue University. http://dx.doi.org/10.5703/128828431553.

23. Li, X., Tao, F., and Bobet, A. (2016). Chemical Modification of Uniform Soils and Soils with High/Low Plasticity Index. The Summer Undergraduate Research Fellowship (SURF) Symposium, Purdue University, MS # 1302.

24. El Howayek, A., Muschett, D, Nantung, T., Lee, J., Santagata, M., & Bobet, A. (2016). *Verification of the enhanced integrated climatic module soil subgrade input parameters in the MEPDG* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2016/08). West Lafayette, IN: Purdue University. http://dx.doi.org/10.5703/1288284316331

25. Bobet, A. (2016). Transparent Rock: Need and Challenges. *Workshop on Geotechnical Fundamentals in the Face of New World Challenges*, NSF, Arlington, VA, July 17-19, 2016.

26. Tao, F., Li, X., Bobet, A., & Siddiki, N. Z. (2016). *Chemical modification of uniform soils and soils with high/low plasticity index* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2016/32). West Lafayette, IN: Purdue University. http://dx.doi.org/10.5703/1288284316359

27. Dunston, P. S., Bobet, A., & McClure, T. B. (2017). *Proof rolling of foundation soil and prepared subgrade during construction* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2017/16). West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284316571.

28. Park, S. S., Nantung, T., & Bobet, A. (2018*). Correlation between resilient modulus (M_R) of soil, light weight deflectometer (LWD), and falling weight deflectometer (FWD)* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2018/08). West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284316651

29. Densmore, J.N., Ellett, K.M., Sneed, M., Brandt, J.T., Howle, J.F., Morita, A.Y., Borela, R., Bobet, A., and Thayer, D.C. (2019). Evaluation of land subsidence and ground failures at Bicycle Basin, Fort Irwin National Training Center, California, 1992–2017: *U.S. Geological Survey Scientific Investigations Report 2019–5015*, 93 pp., https://doi.org/10.3133/sir20195015.

30. Edge, B., Ramirez, J., Peek, L., Bobet, A., Holmes, W., Robertson, I., Smith, T. (2020). *Natural Hazards Engineering Research Infrastructure, 5-Year Science Plan, Multi-Hazard Research To Make a More Resilient World, Second Edition*. DesignSafe-CI. https://doi.org/10.17603/ds2-4s85-mc54.

Invited presentations

1. Bobet, A. (1997). Fracture Coalescence in Rock Materials: Experimental Observations and Numerical Predictions". ETH-Zürich. January 28.

2. Bobet, A. (1997). Fracture Coalescence in Rock Materials: Experimental Observations and Numerical Predictions". Purdue University. April 10.

3. Bobet, A. (1998). USUCGER (United States Universities Council on Geotechnical Engineering Research) Workshop. November 15-16, 1998. Newport, RI.

4. Bobet, A. (1999). Autoadaptive Media in Civil Engineering Systems. Research Workshop. Geotechnical Group Chair. Purdue University. January 8-9.

5. Bobet, A. (2000). The Initiation of Secondary Cracks in Compression. Massachusetts Institute of Technology. April 3, 2000.

6. Bobet, A. (2001). Geotechnical Aspects of the 1999 Turkey Earthquake. CEPDS16. Sixteenth Annual Civil Engineering Professional Development Seminar. ASCE and School of Civil Engineering at Purdue University.

7. Bobet, A., Ramirez, J., and Huo, H. (2001). US-Japan Cooperative Research: Investigation of the Failure of the Daikai Station. University of Tokyo, Japan, March 14.

8. Bobet, A., and Ramirez, J. (2001). Performance based seismic evaluation of underground structures. *Proceedings of the U.S.-Japan Cooperative Research on Urban Earthquake Disaster Mitigation*, pp. 79-88.

9. Bobet, A., Ramirez, J., and Fernández, G. (2002). Evaluation of Observed Behavior of Kobe Metro Station Under Seismic Ground Motions and Assessment of Remedial Measures. *North American Tunneling Conference*, Seattle, May 21.

10. Bobet, A., Ramirez, J., Huo, H., and Fernández, G. (2002). Performance based seismic evaluation of underground structures. *US-Japan Kyoto Meeting on Urban EQ Disaster Mitigation.* Disaster Prevention Research Institute, Kyoto University, Kyoto, Japan.

11. Bobet, A. (2002). Geotechnical and Construction Considerations on Tunnel Stability. Construction Area, School of Civil Engineering, Purdue University.

12. Bobet, A. (2003). Overview of Research Projects in the Geotechnical Group. Department of Earth and Atmospheric Sciences, Purdue University.

13. Bobet, A. (2003). Earthquake in Bingöl. Department of Earth and Atmospheric Sciences, Purdue University.

14. Bobet, A. (2003). Geotechnical Aspects of the 1999 and 2003 Turkey Earthquakes. Civil Engineering Student Advisory Committee, School of Civil Engineering, Purdue University.

15. Bobet, A. (2003). The Initiation of Secondary Cracks in Compression. School of Civil Engineering, University of Toronto, Toronto, CA.

16. Bobet, A. (2003). An Introduction to the Concept of Effective Stress, with Application to Soil and Rock. School of Civil Engineering, University of Toronto, Toronto, CA.

17. Bobet, A. (2004). Load Transfer Mechanisms between Underground Structure and Surrounding Ground: Evaluation of the Failure of the Daikai Station. Departamento

de Ingeniería del Terreno. Technical University of Catalonia (UPC), Barcelona, Spain.

18. Bobet, A. (2004). The Initiation of Shear Cracks in Compression**.** Departamento de Ingeniería del Terreno. Technical University of Catalonia (UPC), Barcelona, Spain.

19. Bobet, A. (2004). Load Transfer Mechanisms between Underground Structure and Surrounding Ground: Evaluation of the Failure of the Daikai Station. University of Michigan.

20. Bobet, A. (2005). Micromechanics of Fracture and Crack Coalescence in Brittle Materials. NSF/EPSRC Workshop on Micro-Geomechanics across Multiple Scales. March 20-23, Cambridge, England.

21. Bobet, A. (2005). Local Site Conditions and Structural Damage during Earthquakes. EERI Purdue Chapter, Purdue University.

22. Bobet, A. (2006). Propagation and Coalescence of Frictional Discontinuities. University of Illinois at Urbana-Champaign.

23. Bobet, A. (2007). Load Transfer Mechanisms between Underground Structure and Surrounding Ground: Failure of the Daikai Station. Universidad Carlos III, Madrid, Spain.

24. Bobet, A. (2007). Seismic Design of Underground Structures. Northeastern University.

25. Bobet, A. (2007). Seismic Design of Underground Structures: Failure of the Daikai Station. MIT.

26. Bobet, A. (2007). Engineering the Pore Fluid: An Autoadaptive Design for Liquefaction Prevention. MIT.

27. Bobet, A. (2009). La Falla de la Estación de Daikai. Foundation of Civil Engineers of Venezuela. Mérida, Venezuela. **Keynote speaker**.

28. Einstein, H.H. and Bobet, A. (2010). Cavern Design for the Deep Underground Science and Engineering Laboratory (DUSEL). NSF, Washington, D.C.

29. Bobet, A. (2010). Propagation and Coalescence of Frictional Discontinuities. ExxonMobile Research and Engineering, New Jersey.

30. Bobet, A. (2011). **2011 ASCE Ralph B. Peck Lecture**. Seismic Design of Underground Structures: Lessons from the Failure of the Daikai Station. Geo-Frontiers 2011, Dallas TX.

31. Bobet, A. (2011). Propagation and Coalescence of Frictional Discontinuities. Nanyang Technological University, Singapore.

32. Bobet, A. (2011). Seismic Design of Underground Structures. Nanyang Technological University, Singapore.

33. Bobet, A. (2011). Earthquake Ground Motions: What Are We Missing? International Symposium: El Diseño Sismo Resistente a la Luz de Avances en Investigaciones y Sismos Recientes. U. Los Andes, Bogotá, Colombia. **Keynote lecture**.

34. Bobet, A. (2011). El Diseño Sísmico de Estructuras Enterradas con el Método "free-field" y otras Equivocaciones. Segundo Encuentro de Profesores Latinos de Geotécnia. GeoLatina 2011. October 6-9, Atlanta, GA.

35. Bobet, A. (2011). Tracking an Energy Elephant: Science and Engineering Challenges for Unlocking the Geothermal Potential of Sedimentary Basins. November 7-9, Salt Lake City, Utah.

36. Bobet, A. (2012). Engineering the pore fluid: An autoadaptive design for liquefaction prevention. Universidad del Valle, Cali, Colombia.

37. Bobet, A. (2012). Seismic Design of Underground Structures: Lessons from the Failure of the Daikai Station. International Engineering and Infrastructure Congress. Panama Canal 2012. April 18-20, Panama City, Panama. **Keynote lecture**.

38. Bobet, A. (2012). Seismic Design of Underground Structures: Lessons from the Failure of the Daikai Station. **Warren Lecture**, U. Minnesota, Minneapolis.

39. Bobet, A. (2012). School of Civil Engineering: National and Global Preeminence. Bowen Engineering Head of Civil Engineering Interview. Purdue University.

40. Bobet, A. (2012). Crack Initiation and Coalescence in Compression. 2nd Unconventional Resources Geomechanics Workshop, Chicago, IL June 22. **Keynote Speaker**.

41. Bobet, A. (2012). Seismic Design of Underground Structures: Lessons from the Failure of the Daikai Station. Tongji University, Shanghai, China.

42. Bobet, A. (2012). Propagation of Frictional Discontinuities. EPFL, Switzerland.

43. Bobet, A. (2013). Seismic Response of Tunnels / Comportamiento Sísmico de Túneles. Segundo Simposio Internancional de Geotecnia-Estructuras y Sísmica. U. Los Andes, Bogotá, Colombia. **Keynote lecture**.

44. Bobet, A. (2013). Propagation and Coalescence of Frictional Discontinuities. University of Wisconsin, Madison.

45. Bobet, A. (2013). The Expansion of the Panama Canal. Purdue Society of Professional Engineers (PSPE), Purdue University.

46. Bobet, A. (2013). The Expansion of the Panama Canal. Civil Engineering Student Advisory Council (CESAC), Purdue University.

47. Bobet, A. (2013). Propagation of Frictional Discontinuities. China University of Geosciences, Wuhan, China.

48. Bobet, A. (2013). Modeling of Initiation and Propagation of Shear Cracks in Compression. China University of Geosciences, Wuhan, China.

49. Guo, J., Chen, J. and Bobet, A. (2013). Influence of a subway station on seismic performance of adjacent structures. SINOROCK 2013 and 3rd ISRM Symposium on Rock Mechanics Shanghai, China, June 18-20.

50. Bobet, A. (2013). Propagation and Coalescence of Frictional Discontinuities. Construction on Weak Rocks, Sudan Geotechnical Society and International Society of Soil Mechanics and Geotechnical Engineering, University of Khartoum, Sudan. **Keynote lecture**.

51. Bobet, A. (2013). Deformation and Failure of Soft Rocks: A Model for Shales. Construction on Weak Rocks, Sudan Geotechnical Society and International Society of Soil Mechanics and Geotechnical Engineering, University of Khartoum, Sudan. **Keynote lecture.**

52. Bobet, A. (2014). Challenges and Opportunities in Geoengineering. Celebration of Faculty Careers, Purdue Engineering, Purdue University. **Invited lecture.**

53. Bobet, A. (2014). Seismic Response of Tunnels: The Free-Field Method and other Misconceptions. Colorado School of Mines, Golden, CO.

54. Bobet, A. (2014). The Expansion of the Panama Canal. Department of Geotechnical Engineering, Tongji University, Shanghai, China.

55. Bobet, A. (2014). The Expansion of the Panama Canal. Department of Geotechnical Engineering, Jiao Tong University, Shanghai, China.

56. Bobet, A. (2014). The Expansion of the Panama Canal. Department of Civil Engineering, China University of Geosciences, Wuhan, China.

57. Bobet, A. (2014). Challenges and Opportunities in Geoengineering. Department of Civil Engineering, China University of Geosciences, Wuhan, China.

58. Bobet, A. (2014). Frictional Discontinuities: The Mechanics and Imaging of Slip. School of Civil Engineering, EPFL, Lausanne, Switzerland.

59. Bobet, A. (2014). Progressive Failure along Frictional Discontinuities. 51st Annual Technical Meeting of the Society of Engineering Science (SES).

60. Bobet, A. (2014). Frictional Discontinuities: The Mechanics and Imaging of Slip. Department of Civil and Environmental Engineering, Northwestern University, Evanston, IL.

61. Bobet, A. (2014). Seismic Response of Tunnels: The Free-Field Method and other Misconceptions. Geosyntec, Oak Brooks, IL.

62. Bobet, A. (2015). Initiation and Propagation of Shear Cracks in Brittle Materials. Department of Civil and Environmental Engineering, Northwestern University, Evanston, IL.

63. Bobet, A. (2015). Challenges and Opportunities in Geomechanics. Department of Civil and Environmental Engineering, Northwestern University, Evanston, IL.

64. Bobet, A. (2016). Frictional Discontinuities: The Mechanics and Imaging of Slip. **Keynote Lecture**, 10th Engineering Geology and Rock Mechanics, Hungarian ISRM-IAEG Congress, 18-19th May 2016, Budapest, Hungary.

65. Bobet, A. (2016). Frictional Discontinuities: The Mechanics and Imaging of Slip. Tongji University, China.

66. Bobet, A. (2017). Seismic Response of Tunnels: The Free Field Method and Other Misconceptions. **Keynote Lecture**, 2nd International Workshop on Resiliency on Urban Tunnel and Pipelines, Tongji University, July 15 2017.

67. Bobet, A. (2017). Resilient Extraterrestrial Habitats. CESAC (Civil Engineering Student Advisory Council), Lyles School of Civil Engineering, Purdue University, March 27.

68. Bobet, A. (2017). Designing Worlds Panel. Purdue's Dawn and Doom conference, Purdue University, September 27, 2017.

69. Bobet, A. (2017). Resilient Extraterrestrial Habitats. Onward to Mars, Purdue University, November 17, 2017.

70. Bobet, A. (2017). Seismic Response of Tunnels: The Free Field Method and Other Misconceptions. College of Civil Engineering and Architecture, Beijing University of Technology, Beijing, China, December 12, 2017.

71. Bobet, A. (2017). Seismic Response of Tunnels: The Free Field Method and Other Misconceptions. College of Civil Engineering, China University of Geosciences, Wuhan, China, December 18, 2017.

72. Bobet, A. (2017). Seismic Response of Tunnels: The Free Field Method and Other Misconceptions. College of Civil Engineering, Hunan University, Changsha, China, December 20, 2017.

73. Bobet, A. (2018). Tunnel Behavior: On-going Research at Purdue University. Seminar on High Performance Computing for Underground Structures, Tongji University, July 31, 2018.

74. Bobet, A. (2018). Seismic Response of Tunnels: The Free Field Method and Other Misconceptions. Department of Underground Engineering, School of Civil Engineering, Southwest Jiaotong University, Chengdu, China, August 6, 2018.

75. Bobet, A. (2018). Interpretation of Tunnel Deformations: Buoyancy and Anisotropy. **Invited Lecture**. Second International Symposium of Smart Underground Space and Infrastructures, Tongji University, December 7-9, 2018.

76. Bobet, A. (2019). Seismic Response of Tunnels: Lessons Learned from Recent Successes and Failures. **Keynote Lecture**, IX Colombian Earthquake Engineering Conference, Universidad del Valle, Cali, Colombia, May 29-31, 2019.

77. Bobet, A. (2019). The Expansion of the Panama Canal. Purdue President's Council Cruise, January 19.

78. Bobet, A. (2019). Resilient Extraterrestrial Habitats. Purdue President's Council Cruise, January 24.

79. Bobet, A. (2019). Resilient Extraterrestrial Habitats. ASCE Purdue Chapter, February 6.

80. Bobet, A. (2019). Resilient Extraterrestrial Habitats. 53rd US Rock Mechanics/Geomechanics Symposium, New York, NY, June 24. **Keynote Lecture**.

81. Bobet, A. (2019). Resilient Extraterrestrial Habitats. Tongji University, Shanghai, China, November 26.

82. Bobet, A. (2020). Resilient Extraterrestrial Habitats. **Energy, Environment and Earth Science Distinguished Lecture**, Sandia National Laboratories, Albuquerque, NM, January 20.

RESEARCH GRANTS AND AWARDS

1. Crack Coalescence in Rocks with Multiple Flaws (PI). Purdue Research Foundation. July 1998 to June 1999. $11,666.

2. Crack Coalescence in Rocks with Multiple Flaws (Cont.) (PI). Purdue Research Foundation. July 1999 to June 2000. $12,626.

3. Optimization of Tunnel Liner Design (PI). Purdue research Foundation. June-August 1999. $5,000.

4. Design of MSE Walls for Fully Saturated Conditions (PI). Joint Transportation Research Program (INDOT-FHWA). July 1999 to February 2003. $125,000.

5. Seismic Design of Deep Foundations (PI, Co-PI: R. Salgado). Joint Transportation Research Program (INDOT-FHWA). August 1999 to January 2001. $25,229 total (50% share).

6. Development of a Database from the Duzce-Bolu Region in Turkey (Co-PI, with A. Johnson, J. Ramirez, M. Sozen; PI: R. Frosch). National Science Foundation. April 2000 to March 2001. $74,999 total (20% share).

7. Fracture Coalescence in Jointed Rocks. (PI). American Chemical Society. September 2000 to August 2002, $25,000.

8. Performance Based Seismic Evaluation of Underground Structures (Co-PI, PI: J. Ramirez). National Science Foundation. April 2000 to March 2003, $120,000 total (50% share).

9. Progressive failure along Frictional Surfaces (PI). Purdue Research Foundation. January 2001 to December 2002, $26,204.

10. Stabilization and Improvement of Soils with Considerable Organic Content. (PI, Co-PI: M. Santagata). Joint Transportation Research Program (INDOT-FHWA). September 2000 to August 2004. $150,000 total (50% share).

11. Guidelines for Use and Types of Retaining Devices. (PI). Joint Transportation Research Program (INDOT-FHWA). September 2000 to December 2001. $30,000.

12. Use of Cement Kiln Dust (CKD) for Subgrade Modification Stabilization (Co-PI, PI: M. Santagata). Lehigh Portland Cement. January-August 2001. $8,946 total (50% share).

13. Soil Treatment with Thixotropic Fluids: An Autoadaptive Design for Liquefaction Prevention (PI, Co-PI: V.P. Drnevich and M. Santagata). National Science Foundation. September 2001 to February 2003. $67,827 (30% share).

14. Emergency Earthquake Routes (Co-PI with V.P.D. Drnevich, S. Peeta, J. Ramirez, J. Shan, V. Van Gelder, PI: M. Sozen). Joint Transportation Research Program. (INDOT-FHWA). April 2001 to September 2001. $49,600 (10% share.).

15. Emergency Earthquake Routes (Co-PI with V.P.D. Drnevich, S. Peeta, J. Ramirez, J. Shan, V. Van Gelder, PI: M. Sozen). Joint Transportation Research Program. (INDOT-FHWA). April 2001 to March 2004. $215,241 total (15% share).

16. Supplement to Grant: Soil Treatment with Thixotropic Fluids (PI; Co-PI V.P. Drnevich and M. Santagata). National Science Foundation; RET Program (Research Experience for Teachers). September 2001 to February 2003. $4,550 total (30% share).

17. Detailed Planning for Research on Accelerating the Renewal of America's Highways (Co-PI with M. Hastak, J. Olek, T. Pellinen, J. Weiss, PI: MacDaniel). National Cooperative Highway Research Program (NCHRP). July 2002 to December 2002. $90,000 total (10% share.)

18. Stiffening of Underground Structures and Lifelines for earthquake Resistant Design (PI). Purdue Research Foundation. September 2003 to August 2006. $27,978.

19. Stabilization and Improvement of Soils with Considerable Organic Content (Co-PI, PI: Santagata). Joint Transportation Research Program. (INDOT-FHWA). September 2004 to August 2005. $25,000 total (50% share.).

20. A Hybridized 3-Dimensional Displacement Discontinuity Method (PI). Ministry of Education, Spain. January 2003 to September 2004. 15,669 EUR.

21. Slip Initiation on Frictional Fractures (PI). American Chemical Society. September 2004 to August 2008. $80,000.

22. Soil Treatment with Thixotropic Fluids: An Autoadaptive Design for Liquefaction Prevention (PI; Co-PI: V.P. Drnevich, M. Santagata, A. Wei). National Science Foundation. September 2004 to August 2008. $340,000 total (25% share).

23. Classification of Organic Soils (Co-PI, PI: M. Santagata). Joint Transportation Research Program. (INDOT-FHWA). August 2005 to October 2006. $70,000 total (50% share).

24. Post-Construction Evaluation of Lime Treated Soils (PI). Joint Transportation Research Program (INDOT-FHWA). August 2005 to May 2008. $128,000.

25. Effect of Inclusions on Material Performance - Investigation Through Micro-Continuum, Discontinuum and Nano-Indentation Approaches (Co-PI, with F. Ulm;

PI: H.H. Einstein). National Science Foundation. August 2006 to July 2010, $598,920 total (12% share).

26. Liquefaction susceptibility mapping in the Evansville, Indiana, region including an investigation of 2D amplification and duration effects due to bedrock valley structure (Co-PI with B. Nowack; PI: J. Haase). USGS. January 2007 to December 2007. $50,000 total (25% share)

27. Classification of Marl Soils (PI). Joint Transportation Research Program. (INDOT-FHWA). January 2008 to April 2009. $75,431.

28. Reduction of Bridge Construction and Maintenance Costs through Coupled Geotechnical and Structural Design of Integral Abutment Bridges (Co-PI, PI: R. Frosch). Joint Transportation Research Program. (INDOT-FHWA). January 2010 to December 2013. $189,227 total (50% share).

29. Mechanical and Geophysical Characterization of Damage in Anisotropic Rock (PI, Co-PI: L. Pyrak-Nolte). National Science Foundation. August 2009 to July 2014, $411,941 total (50% share).

30. Field Investigation of Subgrade Lime Modification (PI). Joint Transportation Research Program. (INDOT-FHWA). May 2009 to November 2009. $35,059.

31. Engineering the Pore Fluid of Sands with Highly Plastic Nano-particles for Liquefaction Prevention (Co-PI with C. Johnston, J. Sinfield; PI: M. Santagata). National Science Foundation. August 2009 to July 2013. $179,287 total (25% share).

32. Cavern Design for the Deep Underground Science and Engineering Laboratory (DUSEL), (Co-PI; PI: H. Einstein). National Science Foundation. September 1 2009 to August 31, 2011. $73,258 total (50% share).

33. French-American Science Symposium. Developing Partnerships for Sustainable Water Management and Agriculture in the context of Climate and Global Change, (Co-PI; PI: R. El-Mohtar). National Science Foundation. July 1, 2010 to June 30, 2011. $104,450 total (50% share).

34. Classification of Organic Soils and Classification of Marls – Training of INDOT Personnel (Co-PI; PI; M. Santagata). Joint Transportation Research Program. (INDOT-FHWA). January 2011 to July 2011. $82,615 total (50% share).

35. Knowledge Build Grant. (PI). ExxonMobile. December 2010. $50,000.

36. Engineering Properties of Marls. (Co-PI, PI: M. Santagata). Joint Transportation Research Program. (INDOT-FHWA). August 2011 to July 2014. $203,516 total, (50% share).

37. Knowledge Build Grant. (PI). ExxonMobile. November 2011. $50,000.

38. Geophysical Monitoring of Mechanical & Chemical Alteration of Frictional Discontinuities, (PI, Co-PI: L. Pyrak-Nolte). Petroleum Research Fund. September 2012 to August 2014. $100,000 total (50% share).

39. Propagation of Frictional Fractures under Complex Loading (PI, Co-PI: L. Pyrak-Nolte). National Science Foundation. August 1, 2012 to July 31, 2016. $449,000 total (50% share).

40. Correlation between Resilience Modulus (MR) of Soil, Light Weight Deflectometer, and Falling Weight Deflectometer (FWD). (PI). Joint Transportation Research Program. (INDOT-FHWA). January 2013 to June 2016. $247,106.

41. Verification of the Enhanced Integrated Climatic Module Soil Subgrade Input Parameters in the MEPDG (Co-PI, PI: Santagata). Joint Transportation Research Program. (INDOT-FHWA). January 2014 to December 2015. $124,509 total (50% share)

42. Dedicated Dynamic Loading Testing Apparatus. (PI). Office of the Vice President for Research, Purdue University. December 2013 to May 2014, $97,946.

43. High-level Expert Project (PI). Tongji University, Shanghai, China. Summer 2014. 100,000 RMB

44. Polymer-MFT Interactions: From surface chemistry to rheology. COSIA: Canada's Oil Sands Innovation Alliance (Co-PI, with M. Santagata; PI: Cliff Johnston). September 2014 to August 2017. $287,208 total (10% share).

45. Assessment of Pipe Fill Heights. (PI). Joint Transportation Research Program. (INDOT-FHWA). February 2014 to September 2015. $25,345.

46. Chemical Modification of Uniform Soils and Soils with High/Low Plasticity Index. (PI). Joint Transportation Research Program. (INDOT-FHWA). January 2015 to October 2016. $130,000.

47. Proof Rolling of Foundation Soil and Prepared Subgrade During Construction. (Co-PI; PI: Phillip Dunston). Joint Transportation Research Program. (INDOT-FHWA). January 2015 to December 2016. $125,000 total (20% share).

48. Assessment of Pipe Fill Heights: Time extension and budget expansion. (PI; Co-PI: G. Haikal). Joint Transportation Research Program. (INDOT-FHWA). June 2016 to May 2017. $74,500 (50% share).

49. Correlation between Resilience Modulus (MR) of Soil, Light Weight Deflectometer, and Falling Weight Deflectometer (FWD): Time extension and budget expansion.

(PI). Joint Transportation Research Program. (INDOT-FHWA). July 2016 to December 2017. $125,000.

50. Natural Hazards Engineering Research Infrastructure: Network Coordination Office. (Co-PI with J. Browning, B. Edge, D. Zuo; PI: J. Ramirez). National Science Foundation. July 2016 to June 2021. $4,606,136 (25% share).

51. Test Rock Specimens-LDRD. (Co-PI; PI: L. Pyrak-Nolte). Sandia National Laboratories. October 2016 to September 2019. $194,260 (49% share)

52. Extraterrestrial Habitat Engineering. (Co-PI with S. Dyke, J. Melosh, J. Ramirez). New Horizons Program, Purdue University. March 2017 to December 2019. $967,904 (25% share).

53. Subgrade Stabilization Alternatives (PI). Joint Transportation Research Program. (INDOT-FHWA). March 2017 to December 2018. $144,834.

54. Detection and Characterization of Precursors to Shear Failure (PI; Co-PI: L. Pyrak-Nolte). National Science Foundation. May 2017 to April 2020. $398,630 (50% share).

55. Assessment of Pipe Fill Heights: Time extension and budget expansion. (PI; Co-PI: G. Haikal). Joint Transportation Research Program. (INDOT-FHWA). October 2017 to December 2018. $86,560 (50% share).

56. Subgrade Stabilization Alternatives: Time extension and budget expansion (PI). Joint Transportation Research Program. (INDOT-FHWA). October 2017 to August 2019. $131,679.

57. Acquisition of a 3D X-ray Microscope: Bridgeing Science, Engineering and Biomedical Applications (Co-PI with C. Johnston, J. Cushman, P. Vlachos, Y. Pushkar; PI: L. Pyrak-Nolte). EVPR Multiuser Research Equipment, Purdue University. 2017. $700.000 (16% share).

58. Purdue Workshop on Damage Mechanics Challenge (Co-PI with Doug Schmitt, Hongkyu Yoon, WaiChing Sun; PI, Laura Pyrak-Nolte). Office of the Provost and the Office of the Executive Vice President for Research and Partnerships, Purdue University. 2018. $25,000 (20% share).

59. Improved Reliability of FWD Tests Results and Correlation with Resilient Modulus (PI). Joint Transportation Research Program. (INDOT-FHWA). December 2018 to January 2021. $225,640.

60. Phase-Transforming Architectured Metastructures (PXAM) for Resilient Infrastructure (Co-PI with Santiago Pujol; PI Pablo Zavattieri). Lyles School of Civil Engineering, 2018-2019. $30,000 (33% share).

61. Assessment of Pipe Fill Heights: Time extension and budget expansion. (PI; Co-PI: G. Haikal). Joint Transportation Research Program. (INDOT-FHWA). January 2019 to August 2019. $66,286 (50% share).

62. Purchasing High Speed Camera (PI). Terracon Foundation. June 2019. $8,000.

63. Use of Geosynthetics on subgrade and on low and variable fill foundations (PI). Joint Transportation Research Program. (INDOT-FHWA). August 2019 to November 2021. $200,639.

64. Use of Recycled Asphalt (PI). Joint Transportation Research Program. (INDOT-FHWA). August 2019 to May 2021. $126,833.

65. Benchmark Data Set for Damage Mechanics Challenge on Brittle-Ductile Materials (Co-PI; PI: L. Pyrak-Nolte). National Science Foundation. January 2020 to December 2020. $89,853 (50% share).

66. STRI: Resilient ExtraTerrestrial Habitat Institute (Co-PI with Billionis, Braun, Cappelleri, Chiu, Jahanshahi, Marais, Maghareh, Ramirez, Whitaker; PI: S. Dyke). NASA, Science Technology Mission Directorate. September 2019 to August 2024. $17,040,750 (6% share).

67. Estimating Strength from Stiffness for Chemically Treated Soils (PI; Co-PI: B. Shin and P. Becker, INDOT). Joint Transportation Research Program. (INDOT-FHWA). January 2020 to December 2021. $123,637 (100% share).

FACULTY HOST (SABBATICAL)

Prof. Youn Kyou Lee (2012)
Kunsan National University, Korea

GRADUATE STUDENTS

Post-Doc

S. Nam (2005)
Ch.-M. Jung (2009)
A. Modiriasari (2017-) – co-supervised with Prof. S. Dyke, J. Melosh, J. Ramirez
A. Maghareh (2017-) – co- supervised with Prof. S. Dyke, J. Melosh, J. Ramirez

Ph.D.

Student	*Grad. year*	*Co-Chair*	*Thesis Title*	*Remarks*
M. Sagong	2001		The Study on the Fracture of Multiple Flaw Specimens	Director General of Future and Strategy Center, KRRI, Korea
H. Lee	2003		Design of MSE Walls for Fully Saturated Conditions	Co-Director, NTU-Hyundai Urban System Center
O. Mutlu	2005		Progressive Failure along Frictional Surfaces	
H. Huo	2005	J. Ramirez	Performance Based Seismic Evaluation of Underground Structures	Associate Professor, CUG Wuhan, China
J. Hwang	2006	M. Santagata	Stabilization and Improvement of Soils with Considerable Organic Content	
C. Park	2008		Crack Coalescence in Specimens with Multiple Frictional Flaws	
C. El-Mohtar	2008	M. Santagata	Soil Treatment with Thixotropic Fluids	Associate Professor, U. Texas, Austin
C. Jung	2009		Seismic Loading on Retaining Structures	
M.K. Choi	2013	L. Pyrak-Nolte	Characterization of Fracture Stiffness Subjected to Normal and Shear Stress	
A. Hedayat	2013	L. Pyrak-Nolte	Mechanical and Geophysical Characterization of Damage in Rocks	Assistant Professor, Colorado School of Mines
Y. Khasawne	2014	R. Frosch	Coupled Geotechnical and Structural Design of Integral Abutment Bridges	
F. Ochoa	2015	M. Santagata	Cyclic behavior of sands with superplastic fines	Assistant Prof., U. de Chile, Santiago
A. El Howayek	2016	M. Santagata	Structure, geology, and engineering properties of two carbonate fine-grained soils	
A. Modiriasari	2017	L. Pyrak-Nolte	Geophysical Signatures of Fracture Mechanisms	
E. Sandoval	2019		Undrained Seismic Response of Underground Structures	Assistant Prof. U. del Valle, Cali, Colombia

S. Park	2020			
D. Muschett	2020			
D. de Melo Moura	2020			
O.P. Magalhaes Vitali	2020			
H. El-Fil	2021	L. Pyrak-Nolte		
Ch. Savigamin	2022			
K. Gupta	2023			
K. Han	2023			

M.S.

Student	*Grad. year*	*Co-Chair*	*Thesis Title*	*Remarks*
A. Bayoumi	2000		Evaluation of Pullout Capacity of Reinforced Ottawa Sand under Drained and Undrained Conditions	
W. Chou	2000		Analytical Solutions for Shallow Tunnels in Saturated Ground	
D. Loukidis	2000	R. Salgado	Seismic Design of Pile Foundations in Southern Indiana	
J. Asyn	2001		Guidelines for Use and Types of retaining Devices	
A. Humphrey	2001	M. Santagata	Stabilization and Improvement of Soils with Considerable Organic Content	
V. Haldavnekar	2003	M. Santagata	Soil Treatment with Thixotropic Fluids	
Y. Chou	2007		State of Stress Ahead of a Tunnel Face Induced by Excavation	
A. Witthoeft	2009	M. Santagata	Modeling of Liquefaction Mitigation using Bentonite	
Y. Tian	2011		Tunnels in saturated elastic transversely anisotropic rock with drainage	
A. El Howayek	2011	M. Santagata	Characterization, Rheology and Microstructure of Laponite Suspensions	
S. Dawood	2014	M. Santagata	Engineering Properties of Marls	
M. Sheng	2014	M. Santagata	Rheological properties of laponite and chemically modified laponite suspensions	

F. Tao	2016		Effect of Temperature on Deep Lined Circular Tunnels in Isotropic and Transversely Anisotropic Ground	
A. A. Quiroga	2019		Effect of Climatic Changes on Subgrade Stiffness	
E. Christoforidou	2021			
P. Shivakumar	2021			
A.T. Ncube	2021			

Visiting Doctoral Students

H. Yu (2009-2010)
J. Wang (2010-2011)
J. Guo (2011-2012)
L. Huang (2012)
H. Cheng (2013)
X. Yan (2015)
J. Ma (2015)
B. Zhen (2016)
J. Li (2016)
J. Chen (2017)
X. Wang (2019-2021)
A. Arslan (2020)

RESEARCH WITH UNDERGRADUATES

Aaron M. Humphrey (Summer 1999).
Orhan Saritas (2000-2001)
Todd Chariton (Summer 2001)
Allison Hunyar (2001-2002)
Geoffrey Henggeler (Fall 2002)
Man Ho Wong (2003-2004)
Alex McQuillan (2005-2006)
Eric Cox (2005-2006)
Zachary Barrett (2006)
Daniel Westervelt (Summer 2006)
Amy Smith (2007-present)
Glorielisa Gonzalez (Summer 2007)
Schmarrah McCarthy (Fall 2009)
Michel Zakaria (Summer 2010)
Haitao Yu, visiting scientist (2009-2010)
Jifei Wang, visiting scientist (Fall 2010)
Hannah Obringer (2010-2011)
Vicente Marín (Summer 2011)
Andrew Ferdon (2011-2012)
Alex Sangermano (2012)
Mariah G. Schroeder (2013-2014)
Xuanchi Li (2015-2016)

Hayley E. Bower (SURF, 2017)
Herta P. Montoya (SURF, 2017)
Collin Sweeney (Spring 2018)
Muyu Guo (Spring, Summer, Fall 2018)
Jack Bandlow (Spring 2018)
Ajay Radhakrishnan (Spring, Fall 2018)
Jory Lyons (SURF, 2018)
Jacob Just (SURF, 2018)
Anthony Boener (Fall, 2018)
Andrew Gaittens (Spring 2019)
Wynn M. Harrow (Fall 2019)

COURSES TAUGHT

Undergraduate

CE 298: Basic Mechanics II
CE 483: Geotechnical Engineering II
CE 498: Senior Design

Graduate

CE 684: Geological Engineering
CE 685: Rock Mechanics
CE 686: Underground Construction
EAS591C: Introduction to Boundary-Element Methods in Geodynamics

Note: CE 684, CE 685, and CE 686 are newly created courses.

SERVICE

Reviewer for Tenure and Promotion

American University of Beirut, Board of Trustees
Asian Institute of Technology, School of Engineering and Technology
Ben-Gurion University of the Negev, Faculty of Engineering Science
Columbia University, Department of Civil Engineering and Engineering Mechanics
Drexel University, Department of Civil, Architectural and Environmental Engineering
EPFL, Switzerland, School of Architecture, Civil & Environmental Engineering
Georgia Institute of Technology, School of Civil and Environmental Engineering
Indian Institute of Science, Bangalore, India
Iowa State University, Department of Civil, Construction and Environmental Engineering
Jiao Tong University, Shanghai, School of Naval Architecture, Ocean and Civil Eng.
Khalifa University, Department of Civil Infrastructure and Environmental Engineering
Monash University Malaysia, Discipline of Civil Engineering
Nanyang Technological University, School of Civil and Environmental Engineering

National Central University, Taiwan, Department of Civil Engineering
Oregon State University, School of Civil and Construction Engineering
Texas A&M University, Zachry Department of Civil Engineering
University of Arizona, Department of Civil Engineering and Engineering Mechanics
University of California, Los Angeles (UCLA), Civil and Environmental Engineering
University of Khartoum, Sudan, Building and Road Research Institute
University of Leeds, UK, School of Civil Engineering
University of Pittsburgh, Department of Civil and Environmental Engineering
University of Texas, Austin, Department of Civil, Architectural and Env. Engineering
University of Texas, Austin, Bureau of Economic Geology
University of Toronto, Department of Civil Engineering
University of Wyoming, Department of Chemical and Petroleum Engineering

Reviewer for Funding Agency Panels

ACS (American Chemical Society)
AGAUR (Catalonia NSF, Spain)
CRDF (U.S. Civilian Research and Development Foundation)
EPSCoR South Carolina
FECYT (Spanish NSF). Ramón y Cajal Program.
KOSEF (Korea Engineering Funding Agency)
Ministry of Education, Singapore
National Center of Science and Technology Evaluation (Republic of Kazakhstan)
NSERC (Science and Engineering Research, Canada)
NSF: Geotechnical and Geomechanical Systems Program
NSF CAREER: Geotechnical and Geomechanical Systems Program
NSF: GEO/EAR, Geophysics
NSF: GEO/EAR, Tectonics
Qatar National Research Fund
Science Foundation Ireland
SNSF (Swiss National Science Foundation)
State Natural Science Award of the People's Republic of China (SNSA)

Reviewer for Technical Journals/Conferences

11th Great Lakes Geotechnical and Geoenvironmental Conference
17th ICSMGE-2009 Egypt Soil Mechanics Conference
40th U.S. Rock Mechanics Symposium
42nd U.S. Rock Mechanics Symposium and 2nd U.S.-Canada Rock Mechanics Symposium
ASCE, Journal of Geotechnical and Geoenvironmental Engineering
ASCE, Journal of Engineering Mechanics
ASCE, Journal of Materials in Civil Engineering
ASCE, Finite Elements in Analysis and Design
ASCE Geotechnical Earthquake Engineering and Soil Dynamics Conference, 2008
ASTM, Geotechnical Testing Journal

Automation in Construction
Earthquake Engineering and Structural Dynamics
Earthquake Spectra
Engineering Fracture Mechanics Journal
Engineering Geology Journal
Engineering Structures
EuroConference 2004 on Rock Physics and Geomechanics
Eurock 2014
Eurock 2017
Eurock 2018
Finite Elements in Analysis and Design
Geo-Congress 2012
Geo-Congress 2019
Geo-Congress 2020
GeoShangai International Conference, 2006
GeoShangai International Conference, 2014
Geotechnical and Geological Engineering Journal
Geotechnique Letters
IFCEE 2018
International Journal of Analytical and Numerical Methods in Geomechanics
International Journal of Fracture
International Journal of Minerals, Metallurgy and Materials
International Journal of Pavement Engineering
International Journal of Rock Mechanics and Mining Sciences
International Journal of Soil Dynamics and Earthquake Engineering
International Journal of Solids and Structures
International Tunneling Association World Tunneling Conference, Seoul, 2006
Iranian Journal of Science and Technology, Transactions of Civil Engineering
Journal of Purdue Undergraduate Research
Journal of Earthquake Engineering
Journal of Geophysical Research
Materials Science & Engineering
Municipal Engineer
Periodica Polytechnica Civil Engineering
Rock Mechanics and Rock Engineering
Soils and Foundations
Soil and Rock 2003 Conference
Structural Engineering and Mechanics Journal
Structure and Infrastructure Engineering
The Arabian Journal for Science and Engineering
TechnoPress
Tunnelling and Underground Space Technology
U.S. Rock Mechanics Symposium, Anchorage Alaska, 2005.
U.S. Rock Mechanics Symposium, Salt Lake City, Utah, 2010.
U.S. Rock Mechanics Symposium, Chicago, 2012.
U.S. Rock Mechanics Symposium, San Francisco, 2013

U.S. Rock Mechanics Symposium, Minnesota, 2014
U.S. Rock Mechanics/Geomechanics Symposium, New York, 2019

Editorial Board Member

ASCE Journal of Geotechnical and Geoenvironmental Engineering	2002-2007
ASTM Geotechnical Testing Journal	2004-2010
Int. Journal for Analytical and Numerical Methods in Geomechanics	2013-present
Int. Journal of Geoengineering Case Histories	2013-present
Rock Mechanics and Rock Engineering Journal	2007-present
Tunnelling and Underground Space Technology	2010-2017
Korean Society of Civil Engineers Journal of Civil Engineering	2014-present

Journal Editor

Rock Mechanics & Rock Engineering, Associate Editor for the Americas	2015-2018
Underground Space Journal, Co-Editor in Chief	2015-present

Professional Societies

American Society of Civil Engineers	1996-present
American Rock Mechanics Association	1997-present
International Society of Rock Mechanics	1997-present
American Society of Engineering Education	1998-2008
ASCE GeoInstitute	2000-present
Consortium of Universities for Research in Earthquake Engineering	2001-2016

Honor Societies

Chi Epsilon (Civil Engineering Honor Society)	2000-present
Sigma-Xi (Scientific Research Society)	1998-2014
ARMA Fellows (elected)	2016-present
Chair of the ARMA Fellows (elected)	2018-present

Technical Society Committees

ASCE Geo-Institute Rock Mechanics Committee	2000-present
Chair. ASCE Geo-Institute Rock Mechanics Committee	2006-2009
ASCE Property of Materials Committee	2002
ARMA Awards Committee	2008-2011
Elected Director, Board of Directors, ARMA	2009-2017
Working Group on Suggested Methods for Rock Failure Criteria, International Society of Rock Mechanics, Co-chair	2009-2012
Vice-president of ARMA	2011-2013
President of ARMA	2013-2015
Immediate Past President of ARMA	2015-2017

National and International Conferences

Organizing Committee Member, 11th Great Lakes Geotechnical and Geoenvironmental Conference (GLGGC), Purdue University	2003
Co-Chair. Session: Reinforcement of Soil and Rock Masses. Soil and Rock America,	2003
Co-Chair, 1st Canada – US Rock Mechanics Symposium. Session: Brittle Fracture and Damage Mechanics II	2007
Chair, Geocongress 08. Session: Rock Mechanics: Site Characterization and Hazard Assessment	2008
Co-Chair, Mines and Large Underground Openings 42 US Rock Mechanics Symposium	2008
Moderator, ARMA Workshop on Education in Underground Science and Engineering in the United States. Sponsored by NSF	2008
Panelist, Characterization and Behavior of Interfaces (CBI), Atlanta	2008
Organizing Committee, 44th U.S. Rock Mechanics Symposium	2009-2010
46th U.S. Rock Mechanics Symposium, Chair	2012
EUROCK 2014, Member of International Scientific Committee	2012-2014
GEOSHANGHAI 2014, Member International Advisory Committee	2012-2014
11th Int. Conference on Analysis of Discontinuous Deformation (ICADD11), Fukuoka, Japan, 2013; Member Scientific Committee	2012-2013
Scientific Advisory Committee, 48 U.S. Rock Mechanics Symposium	2013-2014
Chair, Fracture Mechanics Session, 48 US Rock Mechanics Symposium	2014
International Advisory Committee, XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering	2015
International Advisory Board, 4th GeoChina 2016	2016
Scientific Committee, World Tunnel Congress	2016
Theme Chair, Rock Mechanics: Workshop on Geotechnical Fundamentals in the Face of New World Challenges	2016
Badong International Geohazards Symposium (BIGS2017), Vice-Chair of Academic Committee	2017
GEOSHANGHAI 2018, Member of International Advisory Committee	2018
Organizing Committee, 54th U.S. Rock Mechanics Symposium	2019-2020
EUROCK 2021, Member of International Scientific Committee	2020-2021

Civil Engineering Committees

1.	Curriculum Committee (Geotechnical area)	Spring 1998-Spring 2000	member
1.	Laboratory Committee;	Spring 1998-	member
2.	Computer Committee;	Spring 1998	member
3.	Search Committee	Fall 1998-Spring 1998	member
4.	Curriculum Review Committee	Fall 1998-Spring 2000	member
5.	Teaching Evaluation Committee	Fall 1999-Spring 2000	member
6.	Large Scale Facility Planning Committee	Fall 1999-Spring 2001	member
7.	Geotechnical Search Committee	Fall 1999-Spring 2000	member
8.	Geotechnical Search Committee	Fall 2001	member
9.	Martha Dicks Stevenson Fellowship Committee	Spring 2002	member
10.	Executive Committee	Fall 2002-Spring 2005	member
11.	Purdue Geotech. Society and Leonards Lecture	Fall 2002-present	member

12. Head Search Committee	Fall 2005-Spring 2006	member
13. Geotechnical Area Group Coordinator	Fall 2006-2014	
14. Strategic Hiring Committee	Fall 2006-Spring 2012	member
15. Faculty Governance Committee	Fall 2009-Fall 2010 Fall 2012-2014	member
16. Primary Committee Promotions Committee	Spring 2008-Fall 2009	member
17. External Awards Committee	Spring 2011-Spring 2017	member
18. Faculty Advisor Geo-Institute Graduate Student Organization (GIGSO)	Fall 2011-present	
19. Global Engineering Program Team (GEPT)	Fall 2012-2014	member
20. Search Committee: Big Data	Fall 2013-2014	member
21. Search Committee: Forensics and Rehabilitation	Fall 2013-2014	member
22. Ad-hoc Search Committees (2)	Spring 2016	member
23. Graduate Committee	Fall 2017-present	member

Other Schools/Departments

1. Search Com: Unconventional Energy Chair, EAPS	Spring 2015-Spring 2016	member

Engineering Committees

PRF Summer Faculty Grants Ranking Committee	Fall 2004	member
Faculty Awards Committee	Fall 2007- 2009	member
Engineering Area Promotions Committee	Fall 2008- 2012	member
Engineering Area Promotions Committee	Fall 2017- 2019	member

University Committees

Campus Grievance Appeals Committee	Summer 2000-Spring 2002	member
Faculty advisor for the Purdue student organization "Friends of Europe"	1998-2003	advisor
University Senate	Fall 2005-Spring 2008	member

International program activities.

Promoted the following agreements between Purdue University School of Civil Engineering and School of Civil Engineering, Technical University of Catalonia, Spain.

1. Faculty and graduate student exchange 2001.
2. Undergraduate exchange, 2002.

PROFESSIONAL EXPERIENCE

1984-1985	Field Engineer (EUROESTUDIOS, S.A.). Geotechnical monitoring and assessment for the construction of N-I highway in Idiazabal, Gipuzkoa (Spain); N-I highway from Ikaztegieta to Legorreta in Gipuzkoa (Spain); N-I highway from Tolosa to Ikaztegieta in Gipuzkoa (Spain).
1986-1987	Junior Engineer (EUROESTUDIOS, S.A.). Design of a variety of geotechnical projects including pavements, shallow and deep foundations, deep excavations in soft soils, slope stabilization, landslide stabilization, stabilization of toppling failure, tunnel support (Amara Station in San Sebastian; water supply tunnel in Hernani; Legorreta tunnel).

1987-1988	Senior Engineer (EUROESTUDIOS, S.A.). Geotechnical design, supervision and monitoring during construction of the Terrassa-Manresa Expressway (Spain): A $200 million project.
1988-1990	Construction Manager (FERROVIAL, S.A.). Construction of the road Road "L'Obac" (Andorra). $6 million project.
1988-1990	Construction Manager (FERROVIAL, S.A.). Construction of the road Seu-d'Urgell-Andorra (Spain). $5 million project.
1990-1992	Construction Manager (FERROVIAL, S.A.). Construction of the road N-II Bypass in Girona (Spain). A $80 million, two-lane road project with 3 precast segment-bridge structures, 19 other bridge structures, 3 cut-and-cover tunnels, 3 million c.m. excavation, and 1.6 c.m. fill, porous pavement.

Consulting

2000	Bluestone Dam Report Review, for FMSM Engineers, Lexington, KY, USA. Review of the geotechnical design for the upgrade of the dam and mitigation of flow under the dam.
2002	Bearing Capacity of 42 inch (1050 mm) Polyethylene Pipe, for Advanced Drainage Systems, Inc., Indianapolis, IN, USA. Monitoring and analysis of a series of field tests performed on a 42" pipe subjected to AASHTO H-20 load.
2004	Seismic Viability of the Metro Line 1 of Xi'an, China, for EUROESTUDIOS, S.A., Madrid, Spain. Viability study of the construction of the Xi'an metro based on geotechnical considerations regarding seismic characteristics along the alignment of the subway.
2005	Rockburst Analysis in Lötschberg Tunnel, Switzerland. Numerical modeling of face instabilities observed during excavation of the tunnel. This is a 9.4 m diameter tunnel, 2,000 m deep, excavated on gneiss and granodiorite.
2007	Castle Village Retaining Wall, New York, NY, USA. Investigation of the wall failure and assessment of stabilization measures. A 150 foot section of the wall failed on May 12, 2005. The wall was 70-foot tall and was located along the Henry Hudson Parkway (Route 9A) and Riverside Drive in Manhattan, N.Y.
2008-2010	CSO Deerborn for Kerr, Russell and Weber, PLC, Detroit, MI. Investigation of the failure of Caissons 3 and 5. Caisson 3 was designed as a sinking circular caisson with an inside diameter of 136 feet and an outside diameter of approximately 151 feet. Caisson 5 was a thick-walled reinforced concrete cylinder with an inside radius of 35 ft, a wall thickness of 4.5 ft and 94 feet tall.
2009-2010	Mill Creek Interceptor for Kerr, Russell and Weber, PLC, Detroit, MI. The Interceptor carries 110 million gallons of sanitary sewer per day (MGD) and flows to the Southerly Wastewater Treatment Plant in the Village of Cuyahoga Heights. It is a 48 inch diameter brick sewer built in the 1920's. The Interceptor suffered damage in 2006.

2012-	Member of the Geotechnical Advisory Board of the Panama Canal, Panama. The task of the board is to advise the Panama Canal Authority on all geotechnical engineering matters along the canal.
2013-2014	Bogotá Metro. Seismic Design of the Metro of Bogotá, Colombia. International consultant for Euroestudios, S.A. The job consisted of advising the designer on the seismic design of the bored segments of the metro, given the seismicity of the area.
2014	Eaglepointe landslide in North Salt Lake, Utah. Advised the consultant, Dr. L. Jen on the engineering geology aspects of the landslide.
2014-	Seismic retrofit of the Gatun Dam, Panama Canal. The Gatun dam was built using hydraulic fill and has a high risk of liquefaction, given that it is situated in a seismic zone. The project consists of the design of a berm and filters downstream of the dam to mitigate large displacements of the dam and prevent internal erosion due to transverse cracking.
2016	Pavement heaving of SH130, Austin, Texas. SH130 is experiencing significant heave due to the expansive clays used for the subgrade. The task consisted on advising CINTRA on subsurface exploration, interpretation of results and potential alternatives to mitigate future heave.
2017-2019	Panel of Experts for a 300 MW run-of-river hydropower plant in Balakot, Manshera district of Khyber Phakhtunkhwa, in Pakistan, for the Asian Development Bank. The project included a 58 m concrete gravity arch dam, bypass tunnel (7.5x8 m, 650 m long), headrace tunnel, (8 m diameter, 9.1 km long), pressure tunnel, (5.6 m diameter, 152 m long), tailrace tunnel (8 m diameter, 1.5 km long), underground powerhouse (71x20x34 m) and underground transformer cavern (88x14x20 m). The Panel provided independent, comprehensive opinions and recommendations on the soundness of the engineering studies and design, technical and economic selection of dam and appurtenances construction methods and technical specifications.
2017	MetaRock Laboratories (ARAMCO). Investigate energy efficient procedures to induce hydraulic fractures in tight rocks.