# Bojan Guzina

Department of Civil, Environmental & Geo- Engineering
University of Minnesota, Twin Cities
bojanguzina.org


## Education

1996 PhD, Civil Engineering, University of Colorado Boulder

1992 MS, Civil Engineering, University of Colorado Boulder

1989 Dipl. Ing., Civil Engineering, University of Belgrade, Serbia

## Research interests

- Linear and nonlinear waves in complex natural and architected media
- Inverse problems w/applications to geophysics, material characterization, and medical diagnosis
- Geo-processes in mineral carbon storage
- Mechanics and fracturing of thin films

## Employment experience

| | |
|---|---|
| 09/08 – | *Shimizu Professor*, Department of Civil, Environmental & Geo- Engineering, University of Minnesota, Twin Cities |
| 09/08 – | *Professor*, Department of Civil, Environmental & Geo- Engineering, University of Minnesota, Twin Cities |
| 09/03 – 08/08 | *Associate Professor*, Department of Civil Engineering, University of Minnesota, Twin Cities |
| 01/98 – 08/03 | *Assistant Professor*, Department of Civil Engineering, University of Minnesota, Twin Cities |
| 02/96 – 12/97 | *Research Associate and Instructor*, Department of Civil, Environmental and Architectural Engineering, University of Colorado, Boulder |
| 01/91 – 01/96 | *Research Assistant*, Department of Civil, Environmental and Architectural Engineering, University of Colorado, Boulder |
| 06/89 – 07/90 | *Design Engineer*, Energoprojekt Corporation, Belgrade, Serbia |

## Distinctions

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|---|---|
| 2023 | Organizer, CISM Summer School on Wave Motion in Heterogeneous Media: Analysis, Modeling and Design, Udine, Italy |
| 2022 | Engineering Mechanics Institute (EMI) Elasticity Committee Distinguished Lecturer, American Society of Civil Engineers |
| 2019 | Nathan M. Newmark Medal, American Society of Civil Engineers |
| 2019 | Charles W. Britzius Distinguished Engineer Award, Minnesota Federation of Engineering, Science and Technology Societies |
| 2012 | Lecturer, Workshop on Geometries, Shapes, and Topologies, Mathematisches Forschungsinstitut Oberwolfach (MFO), Oberwolfach, Germany |
| 2011– | Associate Editor, *Lecture Notes in Mechanics*, ASCE |
| 2009 | Visiting Scientist, École Polytechnique, Paris, France |
| 2008 | Organizer, CISM-IUTAM Summer School on Advanced Integral Equation Methods in Computational Mechanics, Udine, Italy |
| 2004– | Associate Editor, *Journal of Engineering Mechanics*, ASCE |
| 2003 | Visiting Scientist, École Polytechnique, Paris, France |
| 2001– | Associate Fellow, University of Minnesota Supercomputing Institute |
| 1999 | CAREER Award, National Science Foundation |
| 1999 | Minnesota Young Civil Engineer of the Year, ASCE |

## GRADUATE & UNDERGRADUATE ADVISING (*sole advisor; *principal advisor; •co-advisor)

### Completed PhD students

15. Prasanna Salasiya*, 2026
    Postdoctoral Research Associate, *University of Minnesota*, Twin Cities, MN
14. Daniel Kennedy*, 2022
    Geotechnical Engineer, *Barr Engineering*, Twin Cities, MN
13. Othman Oudghiri-Idrissi*, 2021
    Assistant Professor, *University of Texas at Austin*, Austin, TX
12. Danial Panahandeh Shahraki*, 2020
    Postdoctoral Fellow, *California Institute of Technology*, Pasdena, CA
11. Remi Cornaggia•, 2016 (Co-directed PhD Program with Université Paris Saclay, France)
    Assistant Professor, *Sorbonne Université*, Institut Jean Le Rond d'Alembert, Paris, France
10. Fatemeh Pourahmadian*, 2016
    Assistant Professor, *University of Colorado Boulder*, Civil, Env. & Arch. Engineering, Boulder, CO
9. Roman Tokmashev*, 2015
    Team Leader, *Procys*, Novosibirsk, Russia
8. Egor Dontsov*, 2013
    Chief Scientist, *ResFrac Corporation*, Palo Alto, CA
7. Huina Yuan*, 2011
    Lecturer, *Tsinghua University*, Hydraulic Engineering, Beijing, China
6. Yuejian Cao*, 2010
    Independent Consultant, New York City, NY
5. Cedric Bellis•, 2010 (Co-directed PhD Program with Ecole Polytechnique, France)
    CNRS Scientist, *Aix-Marseille University*, Mechanics & Acoustics Lab, Marseille, France
4. Ivan Chikichev*, 2007
    STEM Professor, *Lone Star College*, Houston, TX
3. Andrew Madyarov*, 2006
    Wells Engineer, *Shell*, Houston, TX
2. Olivier Hoffmann•, 2006
    Research Engineer, *Karst Engineering*, Knoxville, TN
1. Sylvain Nintcheu Fata*, 2003
    Independent Consultant, Boston, MA

### Completed MS students

16. Svetlana Baranova*, 2018, *NYSHEX*, New York City, NY
15. Fatemeh Pourahmadian*, 2014, *University of Colorado Boulder*, CO
14. Kairat Tuleubekov*, 2008, *SRA International*, Linwood, NJ
13. Tom Westover*, 2007, *Cornforth Consultants*, Portland, OR
12. Joel Swenson*, 2006, *Barr Engineering*, Minneapolis, MN
11. Luke Thomson•, 2006, *Short Elliott Hendrickson*, St. Paul, MN
10. Yuejian Cao*, 2006, *Independent Consultant*, New York City, NY

9. Amit Jain•, 2005, *Honda R&D*, Dublin, OH
8. Josh Edwards•, 2004, *AVR Inc.*, St. Paul, MN
7. Robert Osburn*, 2004, *Barr Engineering*, Minneapolis, MN
6. Peter Davich•, 2004, *Minnesota Department of Transportation*, St. Paul, MN
5. Przemyslaw Przemyslawski*, 2004, *Ernst & Young*, Warsaw, Poland
4. Olivier Hoffmann*, 2003, *Halliburton*, Houston, TX
3. Marcus Brown•, 2002, *Applied Materials*, Missoula MT
2. Dongwei Cao*, 2001, *Yahoo!*, Los Angeles, CA
1. Anjun Lu*, 2000, *Motorola Corporation*, Chicago, IL

**Postdoctoral fellows**

- Ali Aminzadeh, 2023–2025
- Thi Phong Nguyen, 2019–20
  Assistant Professor, *New Jersey Institute of Technology*, Dept. of Math. Sciences, Newark, NJ
- Shixu Meng, 2016–17
  Assistant Professor, *The University of Texas at Dallas*, Inst. Appl. Mathematics, Beijing, China
- Fatemeh Pourahmadian, 2016
  Assistant Professor, *University of Colorado*, Civil, Env. & Arch. Engineering, Boulder, CO
- Roman Tokmashev, 2015
  Team Leader, *Procys*, Novosibirsk, Russia
- Egor Dontsov, 2013–14
  Chief Scientist, *ResFrac Corporation*, Palo Alto, CA
- Elizabete Rodrigues Ferreira, 2013
  *Université Libre de Bruxelles*, Department of Mathematics, Brussels, Belgium
- Marcin Bialas, 2009–10
  Staff Member, *Polish Academy of Sciences*, Institute of Fund. Technol. Research, Warsaw, Poland
- Alison Malcolm, 2005-06
  Professor, *Memorial University of Newfoundland*, Earth Sciences, St. John's, Canada
- Sylvain Nintcheu Fata, 2003–04
  Independent Consultant, Boston, MA

**Current PhD students**

- Nguyen Trong Long*, 2024–
- Andrei Severin*, 2024–

**Undergraduate research supervision**

- Katherine Smith (University of Minnesota), 2025
- Daniel Kennedy (University of Minnesota), 2016-2018
- Jennifer Chapman (University of Minnesota), 2016-2017
- Remi Lacombe (ENSTA, France), 2017
- Mateus Rodrigues Batata, (UNIOESTE, Brasil), 2016
- Pierre-Augustin Risch (Ecole Polytechnique, France), 2015

- Remi Feuillet (ENSTA, France), 2015
- Antoine Wautier (Ecole Polytechnique, France), 2013
- Pierre Bonnet (ENSTA Bretagne, France), 2012
- Antonin Tixier (Ecole Polytechnique, France), 2011
- Simon Humbert (Ecole Polytechnique, France), 2011
- Gonzague Bracq (Ecole Polytechnique, France), 2009
- Tom Westover (University of Minnesota), 2004-2005
- Lucas Heaton (University of Minnesota), 2002-2003
- William Dehler (University of Minnesota), 2002- 2003
- Robert Osburn (University of Minnesota), 2001-2002

**Student organizations**

1998–1999 Advisor, *ASCE Student Chapter*, University of Minnesota

## RESEARCH DISSEMINATION

### Patents

- B.B. Guzina, E. Dontsov and M. Fatemi (2018). System and Method for Local Estimation of Nonlinear Tissue Elasticity with Acoustic Radiation Force, *U.S. Patent #* **10,136,876**.

### Papers in refereed journals

93. P. Asem, B.B. Guzina, and J.F. Labuz (2026). Chemical weathering, carbonate alkalinity and geologic carbon cycle, *Géotechnique Letters*, **16**, 112-119.

92. A. Aminzadeh, P. Salasiya, J.F. Labuz, M. Nooraiepour, and B.B. Guzina (2026). Ultrasonic sensing of the mechanical fingerprint of reactive transport in rock, *Int. J. Rock Mech. Mining Sci.*, **199**, 106404.

91. B.B. Guzina, S. Meng, P. Salasiya, and L. Nguyen (2026). On the surface Bloch waves in truncated periodic media: scalar wave primer, *Proc. Roy. Soc. A*, **482**, 20250647.

90. W.F. Kneipp, A.A. Novotny and B.B. Guzina (2025). Full-waveform reconstruction of microseismic events via observations of acoustic pressure in the surrounding fluid, *Inverse Problems*, **41**, 085011.

89. B.B. Guzina and M Bonnet (2025). On the constitutive behavior of linear viscoelastic solids under the plane stress condition, *J. Elasticity*, **157**, 45.

88. P. Salasiya and B.B. Guzina (2025). A simple tool for the optimization of 1D phononic and photonic bandgap filters, *J. Comp. Phys.*, **524**, 113723.

87. P. Salasiya, S. Meng and B.B. Guzina (2024). Plug-and-play analytical paradigm for the scattering of plane waves by "layer-cake" periodic systems, *Proc. Roy. Soc. A*, **480**, 20240118.

86. M. Bonnet, P. Salasiya and B.B. Guzina (2024). Modified error-in-constitutive-relation (MECR) framework for the characterization of linear viscoelastic solids, *J. Mech. Phys. Solids*, **190**, 105746.

85. A.A.M. Da Silva, A.A. Novotny, A.A.S. Amad and B.B. Guzina (2024). Full-waveform reconstruction of micro-seismic events via topological derivative approach, *J. Comp. Phys.*, **510**, 113099.

84. D.V. Kennedy, B.B. Guzina, and J.F. Labuz (2024). Nondestructive evaluation of pile length for high-mast light towers, *J. Geotech. Geonenv. Eng., ASCE*, **150**, 04024059.

83. D.V. Kennedy, B.B. Guzina, and J.F. Labuz (2023). A machine learning framework for in situ sensing of pile length from seismic cone penetrometer data, *Computers & Geotechnics*, **159**, 105505.

82. O. Oudghiri-Idrissi and B.B. Guzina (2022). Effective linear wave motion in periodic origami structures, *Comp. Meth. Appl. Math. Eng.*, **399**, 115386.

81. B.B. Guzina, O. Oudghiri-Idrissi and S. Meng (2022). Asymptotic anatomy of the Berry phase for scalar waves in 2D periodic continua, *Proc. Roy. Soc. A*, **478**, 20220110.

80. D.P. Shahraki and B.B. Guzina (2022). From d'Alembert to Bloch and back: A semi-analytical solution of 1D boundary value problems governed by the wave equation in periodic media, *Int. J. Solids Struct*, **234-5**, 111239.

79. D.P. Shahraki and B.B. Guzina (2022). Homogenization of the wave equation with non-uniformly oscillating coefficients, *Math. Mech. Solids*, **27**, 1-25.

78. S. Meng, O. Oudghiri-Idrissi, and B.B. Guzina (2021). A convergent low-wavenumber, high-frequency homogenization of the wave equation in periodic media with a source term, *Applicable Analysis*, **100**, 1-34.

77. B.B. Guzina and M. Bonnet (2021). Effective wave motion in periodic discontinua near spectral singularities at finite frequencies and wavenumbers, *Wave Motion*, **103**, 102729 (32pp).

76. O. Oudghiri-Idrissi, B.B. Guzina, and S. Meng (2021). On the spectral asymptotics of waves in periodic media with Dirichlet or Neumann exclusions, *Quart. J. Mech. Appl. Math.*, **74**, 173-221.

75. A.A.S. Amad, A.A. Novotny, and B.B. Guzina (2020). On the full-waveform inversion of seismic moment tensors, *Int. J. Solids Struct*, **202**, 717-728.

74. R. Cornaggia and B.B. Guzina (2020). Second-order homogenization of boundary and transmission conditions for one-dimensional waves in periodic media, *Int. J. Solids Struct.*, **188-9**, 88-102.

73. D.P. Shahraki, V. Kumar, S. Ghavami, M.W. Urban, A. Alizad, B.B. Guzina, and M. Fatemi (2020). C-elastography: in vitro feasibility phantom study, *Ultras. Med. Biol.*, **46**, 1738-54.

72. T.P. Nguyen and B.B. Guzina (2019). Generalized linear sampling method for the inverse elastic scattering of fractures in finite bodies, *Inverse Problems*, **35**, 104002 (16pp).

71. F. Cakoni, B.B. Guzina, S. Moskow, and T. Pangburn (2019). Scattering by a bounded highly oscillating periodic medium and the effect of boundary correctors, *SIAM J. Appl. Math.*, **79**, 1448-74.

70. B.B. Guzina, S. Meng and O. Oudghiri-Idrissi (2019). A rational framework for dynamic homogenization at finite wavelengths and frequencies, *Proc. Roy. Soc. A*, **475**, 20180547 (30pp).

69. M. Bonnet, R. Cornaggia, and B.B. Guzina (2018). Microstructural topological sensitivities of the second-order macroscopic model for waves in periodic media, *SIAM J. Appl. Math.*, **78**, 2057-82.

68. F. Pourahmadian and B.B. Guzina (2018). On the elastic anatomy of heterogeneous fractures in rock, *Int. J. Rock. Mech. Min. Sci.*, **106**, 259-268.

67. S. Meng and B.B. Guzina (2018). On the dynamic homogenization of periodic media: Willis' approach versus two-scale paradigm, *Proc. Roy. Soc. A*, **474**, 20170638 (27pp).

66. F. Pourahmadian, B.B. Guzina, and H. Haddar (2017). A synoptic approach to the seismic sensing of heterogeneous fractures: From geometric reconstruction to interfacial characterization, *Comp. Meth. Appl. Mech. Eng.*, **324**, 395-412.

65. F. Pourahmadian and B.B. Guzina and H. Haddar (2017). Generalized linear sampling method for elastic-wave sensing of heterogeneous fractures, *Inverse Problems*, **33**, 055007 (32pp).

64. E.V. Dontsov and B.B. Guzina (2017). Direction-independent algorithm for simulating nonlinear pressure waves, *J. Eng. Mech., ASCE*, **143**, 04017006 (6pp).

63. F. Cakoni, B.B. Guzina, and S. Moskow (2016). On the homogenization of a scalar scattering problem for highly oscillating anisotropic media, *SIAM J. Math. Anal.*, **48**, 2532-60.

62. S.A. Lambert, S.P. Nasholm, D. Nordsletten, C. Michler, L. Juge, J-M. Serfaty, L. Bilston, B.B. Guzina, S. Holm, and R. Sinkus (2015). Bridging three orders of magnitude: Multiply scattered waves sense fractal microscopic structures via dispersion, *Phys. Rev. Lett.*, **115**, 094301 (6pp).

61. B.B. Guzina and F. Pourahmadian (2015). Why the high-frequency inverse scattering by topological sensitivity may work, *Proc. Roy. Soc. A*, **471**, 20150187 (29pp).

60. F. Pourahmadian and B.B. Guzina (2015). On the elastic-wave imaging and characterization of fractures with specific stiffness, *Int. J. Solids Struct.*, **71**, 126-140.

59. A. Wautier and B.B. Guzina (2015). On the second-order homogenization of wave motion in periodic media and the sound of a chessboard, *J. Mech. Phys. Solids*, **78**, 382-414.

58. B.B. Guzina, E.V. Dontsov, M. Urban, and M. Fatemi (2015). The 'sixth sense' of ultrasound: probing nonlinear elasticity with acoustic radiation force, *Phys. Med. Biol.*, **60**, 3775-3794.

57. H. Yuan, B.B. Guzina, and R. Sinkus (2014). Application of topological sensitivity toward tissue elasticity imaging using magnetic resonance data, *J. Eng. Mech., ASCE*, **140**, 443-453.

56. R.D. Tokmashev, A. Tixier, and B.B. Guzina (2013). Experimental validation of the topological sensitivity approach to elastic-wave imaging, *Inverse Problems*, **29**, 125005 (25pp).

55. E.V. Dontsov, R.D. Tokmashev, and B.B. Guzina (2013). A physical perspective of the length scales in gradient elasticity through the prism of wave dispersion, *Int. J. Solids Struct.*, **50**, 3674-3684.

54. E.V. Dontsov and B.B. Guzina (2013). Dual-time approach to the numerical simulation of modulated nonlinear ultrasound fields, *Acta Acoustica*, **99**, 777-791.

53. C. Bellis, M. Bonnet and B.B. Guzina (2013). Apposition of the topological sensitivity and linear sampling approaches to inverse scattering, *Wave Motion*, **50**, 891-908.

52. E.V. Dontsov and B.B. Guzina (2013). On the KZK-type equation for modulated ultrasound fields, *Wave Motion*, **50**, 763-775.

51. H. Yuan, B.B. Guzina, S. Chen. R. Kinnick, and M. Fatemi (2013). Application of topological sensitivity toward soft-tissue characterization from vibro-acoustography measurements, *ASME J. Comp. Nonlinear Dynamics*, **8**, 034503 (6pp).

50. C. Bellis, F. Cakoni, and B.B. Guzina (2013). Nature of the transmission eigenvalue spectrum for elastic bodies, *IMA J. Appl. Math.*, **78**, 895-923.

49. E.V. Dontsov and B.B. Guzina (2012). Acoustic radiation force in tissue-like solids due to modulated sound field, *J. Mech. Phys. Solids*, **60**, 1791-1813.

48. H. Yuan and B.B. Guzina (2012). Topological sensitivity for vibro-acoustography applications, *Wave Motion*, **49**, 765-781.

47. H. Yuan, B.B. Guzina, S. Chen, R.R. Kinnick and M. Fatemi (2012). Estimation of the complex shear modulus in tissue-mimicking materials from optical vibrometry measurements, *Inv. Probl. Sci. Eng.*, **20**, 173-187.

46. Y. Cao, J.F. Labuz, and B.B. Guzina (2011). Evaluation of pavement systems based on ground-penetrating radar full-waveform simulation, *Transp. Research Record*, **2227**, 71-78.

45. Y. Cao and B.B. Guzina (2011). Field forms of the layered electromagnetic Green's functions by TE and TM potentials, *Radio Science*, **46**, RS6003 (14pp).

44. M. Bialas and B.B. Guzina (2011). On the viscoelastic characterization of thin tissues via surface-wave sensing, *Int. J. Solids Struct.*, **48**, 2209-2217.

43. E. Dontsov and B.B. Guzina (2011). Effect of low-frequency modulation on the acoustic radiation force in Newtonian fluids, *SIAM J. Appl. Math.*, **71**, 356-378.

42. B.B. Guzina, F. Cakoni, and C. Bellis (2010). On the multi-frequency obstacle reconstruction via the linear sampling method, *Inverse Problems*, **26**, 125005 (29pp).

41. H. Yuan and B.B. Guzina (2010). Reconstruction of viscoelastic tissue properties from MR elastography-type measurements, *Compt. Rend. Mecanique*, **338**, 480-488.

40. C. Bellis and B.B. Guzina (2010). On the existence and uniqueness of a solution to the interior transmission problem for piecewise-homogeneous solids, *J . Elasticity*, **101**, 29-57.

39. E.M. Thompson, L.G. Baise, R.E. Kayen, and B.B. Guzina (2009). Impediments to predicting site response: seismic property estimation and modeling simplifications, *Bull. Seism. Soc. Amer.*, **99**, 2927-2949.

38. B.B. Guzina, K. Tuleubekov, D. Liu and E.S. Ebbini (2009). Viscoelastic characterization of thin tissues using acoustic radiation force and model-based inversion, *Phys. Med. Biol.*, **54**, 4089-4112.

37. B. B. Guzina and H. Yuan (2009). On the small-defect perturbation and sampling of heterogeneous solids, *Acta Mechanica*, **205**, 51-75.

36. M. Bonnet and B.B. Guzina (2009). Elastic-wave identification of penetrable obstacles using shape-material sensitivity framework, *J. Comp. Physics*, **228**, 294-311.

35. I. Chikichev and B.B. Guzina (2008). Generalized topological derivative for the Navier equation and inverse scattering in the time domain, *Comp. Meth. Appl. Mech. Eng.*, **197**, 4467-4484.

34. A. Malcolm and B.B. Guzina (2008). On the topological sensitivity of transient acoustic fields, *Wave Motion*, **45**, 821-834.

33. M. Bonnet, B.B. Guzina and N. Nemitz (2008). Fast non-iterative methods for defect identification, *Rev. Eur. Mecan. Num.*, **17**, 571-582.

32. S. Nintcheu Fata and B. B. Guzina (2007). Elastic scatterer reconstruction via the adjoint sampling method, *SIAM J. Appl. Math.*, **67**, 1330-1352.

31. B.B. Guzina and A. Madyarov (2007). A linear sampling approach to inverse elastic scattering in piecewise-homogeneous domains, *Inverse Problems*, **23**, 1467-1493.

30. B.B. Guzina and I. Chikichev (2007). From imaging to material characterization: a generalized concept of topological sensitivity, *J. Mech. Phys. Solids*, **55**, 245-279.

29. A. Jain, B.B. Guzina and V.R. Voller (2007). Effects of overburden on joint spacing in layered rocks, *J. Struct. Geology*, **29**, 288-297.

28. T. Westover and B. B. Guzina (2007). Engineering framework for the self-consistent analysis of Falling Weight Deflectometer data, *Transp. Research Record*, **2005**, 55-63.

27. B.B. Guzina and M. Bonnet (2006). Small-inclusion asymptotic of misfit functionals for inverse problems in acoustics, *Inverse Problems*, **22**, 1761-1785.

26. K. Baganas, B.B. Guzina, A. Charalambopoulos and G.D. Manolis (2006). A linear sampling method for the inverse transmission problem in near-field elastodynamics, *Inverse Problems*, **22**, 1835-1853.

25. B.B. Guzina, R.Y.S. Pak and A.E. Martinez-Castro (2006). Singular boundary elements for three-dimensional elasticity problems, *Eng. Anal. Bound. Elem.*, **30**, 623-639.

24. A.I. Madyarov and B.B. Guzina (2006). A radiation condition for layered elastic media, *J. Elasticity*, **82**, 73-98

23. B.B. Guzina and A.I. Madyarov (2005). On the spectral analysis of Love waves, *Bull. Seism. Soc. Amer.*, **95**, 1150-1169.

22. B.B. Guzina, D. Timm, and V. Voller (2004). Crack spacing in strained films, *J. de Physique IV*, **120**, 201-208.

21. O.J-M. Hoffmann, B.B. Guzina, and A. Drescher (2004). Stiffness estimates using portable deflectometers, *Transp. Res. Record*, **1869**, 59-66.

20. M. Bonnet and B.B. Guzina (2004). Sounding of finite solid bodies by way of topological derivative, *Int. J. Num. Meth. Eng.*, **61**, 2344-2373.

19. S. Nintcheu and B.B. Guzina (2004). A linear sampling method for near-field inverse problems in elastodynamics, *Inverse Problems*, **20**, 713-736.

18. M. Bonnet and B.B. Guzina (2004). Topological derivative applied to cavity identification from elastodynamic surface measurements, *Eur. J. Comp. Mech.*, **13**, 425-436.

17. B.B. Guzina and M. Bonnet (2004). Topological derivative for the inverse scattering of elastic waves, *Quart. J. Mech. Appl. Math.*, **57**, 161-179.

16. S.F. Nintcheu, B.B. Guzina, and M. Bonnet (2003). Computational basis for the boundary integral solution to inverse scattering problems in elastodynamics, *Comp. Mechanics*, **32**, 370-380.

15. D. Timm, B.B. Guzina, and V. Voller (2003). Prediction of thermal crack spacing, *Int. J. Solids Struct.*, **40**, 125-142.

14. B.B. Guzina, S.F. Nintcheu, and M. Bonnet (2003). On the stress-wave imaging of cavities in a semi-infinite solid, *Int. J. Solids Struct.*, **40**, 1505-1523.

13. B.B. Guzina and R. Osburn (2002). An effective tool for enhancing the elastostatic pavement diagnosis, *Transp. Research Record*, **1806**, 38-47.

12. B.B. Guzina and S.F. Nintcheu (2002). Study of ground-structure interaction in dynamic plate load testing, *Int. J. Num. Anal. Meth. Geomech.*, **26**, 1147-1166.

11. R.Y.S. Pak and B.B. Guzina (2002). Three-Dimensional Green's functions for a multilayered half-space in displacement potentials, *J. Eng. Mech., ASCE*, **128**, 449-461.

10. B.B. Guzina and A. Lu (2002). Coupled waveform analysis in dynamic characterization of lossy solids, *J. Eng. Mech., ASCE*, **128**, 392-402.

9. B.B. Guzina and S.F. Nintcheu (2001). Axial vibration of a padded annulus on a semi-infinite viscoelastic medium, *J. Appl. Mech.*, ASME, **68**, 923-928.

8. B.B. Guzina and R.Y.S. Pak (2001). On the analysis of wave motions in a multi-layered solid, *Quart. J. Mech. Appl. Math.*, **54**, 13-37.

7. R.Y.S. Pak and B.B. Guzina (1999). Seismic soil-structure interaction analysis by direct boundary element formulations, *Int. J. Solids Struct.*, **36**, 4743-4766.

6. B.B. Guzina and R.Y.S. Pak (1999). Static fundamental solutions for a bi-material full-space, *Int. J. Solids Struct.*, **36**, 493-516.

5. B.B. Guzina and R.Y.S. Pak (1998). Vertical vibration of a circular footing on a linear-wave-velocity half-space, *Géotechnique*, **48**, 159-168.

4. B.B. Guzina and R.Y.S. Pak (1996). Elastodynamic Green's functions for a smoothly heterogeneous half-space, *Int. J. Solids Struct.*, **33**, 1005-1021.

3. R.Y.S. Pak and B.B. Guzina (1995). Dynamic characterization of vertically loaded foundations on granular soils, *J. Geotech. Eng.*, ASCE, **121**, 274-286.

2. R.Y.S. Pak and B.B. Guzina (1995). Three-dimensional wave propagation analysis of a smoothly heterogeneous solid, *J. Mech. Phys. Solids*, **43**, 533-551.

1. B.B. Guzina , E. Rizzi, K. Willam and R.Y.S. Pak (1995). Failure prediction of smeared crack formulations, *J. Eng. Mech., ASCE*, **121**, 150-161.

**Other refereed publications**

5. M. Bonnet, B.B. Guzina, and S. Nintcheu Fata (2004). Cavity identification using 3D elastodynamic BEM, shape sensitivity and topological derivative, *Advances in Scattering Theory and Biomedical Engineering*, 205-212, World Scientific, Singapore.

4. B.B. Guzina, A.I. Madyarov, and R.H. Osburn (2004).
Computational and physical basis for dynamic site characterization using Love waves, *Geotechnical and Geophysical Site Characterization*, 935-942, Millpress, Rotterdam.

3. B. B. Guzina (2000). Dynamic soil sensing via horizontally-polarized shear waves, Use of Geophysical Methods in Construction, *Geotechnical Special Publication*, **108**, ASCE, 95-108.

2. B. B. Guzina and R.Y.S. Pak (1998). Experimental inversion for lateral-rocking impedance matrix, Geotechnical Earthquake Engineering and Soil Dynamics III, *Geotechnical Special Publication*, **75**, ASCE, 1294-1307.

1. B. B. Guzina and R.Y.S. Pak (1997). Multi-layer representations of continuous in-situ profiles in soil dynamics: Observation and Modeling in Numerical Analysis and Model Tests in Dynamic Soil-Structure Interaction Problems, *Geotechnical Special Publication*, **64**, ASCE, 1-10.

**Invited lectures** ($\star$) **and presentations** ($*$)

$*$ Surface Bloch waves in truncated periodic media. *1st International Conference on Metamaterials – MetaMAT 2026*, Ajaccio, Corsica, Frances, July 20–24, **2026**.

$\star$ On the "constitutive MRI" of dissipative solids. *École Supérieure de Physique et de Chimie Industrielles (ESPCI), Sorbonne University*, Paris, France, June 20, **2025**.

$\star$ Modified error-in-constitutive-relation (MECR) framework for the characterization of viscoelastic solids. *National Laboratory for Scientific Computation (LNCC)*, Petropolis, Brazil, November 8, **2024**.

$\star$ Plug-and-play paradigm for the analysis of scattering by "layer-cake" periodic systems. Online lecture, *Imperial College London*, Meta-MAT Seminar Series, March 5, **2024** video recording.

$\star$ Wave motion in heterogeneous media: analysis, modeling and design. *CISM Summer School*, Udine, Italy, June 19-23, **2023** (6 lectures).

$\star$ Keynote lecture: Detecting pile lengths of high mast light towers. Minnesota Geotechnical Society's 71st Annual Geotechnical Engineering Conference, St Paul, MN, February 23-24, **2023**.

$\star$ Spectral homogenization of the wave motion in periodic continua: alphabet and insights. *Inaugural EMI Elasticity Committee Distinguished Lecture*, Department of Civil and Environmental Engineering, *University of Michigan*, Ann Arbor, March 15, **2022**.

⋆ On the spectral asymptotics of waves in periodic media with Dirichlet or Neumann exclusions. Laboratoire de Mécanique et d'Acoustique (LMA), *École Centrale de Marseille*, Marseille, France, October 20, **2020**.

⋆ A rational framework for dynamic homogenization at finite wavelengths and frequencies. Laboratoire POems, *ENSTA ParisTech*, Palaiseau, France, July 4, **2018**.

⋆ Dance of the crawling waves: effective wave motion at finite wavelengths and frequencies. *Institut Langevin*, Paris, France, June 19, **2018**.

⋆ Bridging three orders of magnitude: multiple scattered waves sense fractal microscopic structures via dispersion. Workshop on *Mechanics in Scientific Discovery*, Florence, Italy, June 9-14, **2017**.

⋆ On the homogenization of a transmission problem in scattering theory for highly oscillating media. Department of Civil Engineering, *National Technical University of Athens*, Greece, July 6, **2016**.

⋆ On the second-order homogenization of wave motion in periodic media and the sound of a chessboard. Department of Civil Engineering, *University of Belgrade*, Serbia, January 25 , **2016**.

⋆ On the second-order homogenization of wave motion in periodic media and the sound of a chessboard. Department of Civil & Environmental Engineering, *Politecnico di Milano*, Italy, June 22, **2015**.

⋆ The sixth sense of ultrasound: probing tissue nonlinear elasticity with acoustic radiation force. Department of Civil & Environmental Engineering, *Duke University*, September 29, **2014**.

⋆ Surviving a catastrophe: on the high-frequency imaging of impenetrable obstacles. *IPTA 2014: Inverse Problems – from Theory to Application*, celebrating 30 years of *Inverse Problems*, Bristol, UK, August 26-28, **2014**.

⋆ Non-iterative approaches to seismic waveform tomography. *National Center for Scientific Computation (LNCC)*, Petropolis, Brazil, August 14, **2014**.

⋆ On the relationship between gradient elasticity and second-order homogenization of wave motion in periodic solids. *Workshop on Shape and Topology Optimization with PDE Constraints honoring Jan Sokolowski*, Petropolis-Rio de Janeiro, Brazil, August 11-15, **2014**.

⋆ Keynote lecture: Why the inverse scattering by topological sensitivity may work. *WCCM XI: 11th World Congress on Computational Mechanics*, Barcelona, Spain, July 20-25, **2014**.

⋆ On the high-frequency imaging of impenetrable obstacles. *International Conference on Novel Directions in Inverse Scattering honoring David Colton*, University of Delaware, July 29 - Aug 2, **2013**.

⋆ Why the obstacle reconstruction by topological derivative may work. *WAVES 2013: 11th International Conference on Mathematical and Numerical Aspects of Waves*, Gammarth, Tunisia, June 3-7, **2013**.

⋆ On the second-order homogenization of wave motion in periodic media and the sound of chessboard. Department of Mathematical Sciences, *University of Delaware*, Nov 21, **2013**.

⋆ Keynote lecture: Why the obstacle reconstruction by topological sensitivity may work. Minisymposium on Inverse Problems. *PICOF '12: 6th International Conference on Inverse Problems, Control and Shape Optimization*, Paris, France, April 2-4, **2012**.

⋆ Bits and pieces put together to present a semblance of a whole. Workshop on Geometries, Shapes, and Topologies in PDE-based Applications, *MFO: Mathematisches Forschungsinstitut Oberwolfach*, Oberwolfach, Germany, Nov 25 – Dec 1, **2012**.

⋆ Keynote lecture: On the computation of high-intensity, focused ultrasound fields in tissue-like solids. *ECCOMAS 2012*: 6th European Congress on Computational Methods in Applied Sciences and Engineering Vienna, Austria, Sept. 10-14, **2012**.

⋆ Effect of low-frequency modulation on the acoustic radiation force in Newtonian fluids. IPRPI Department of Mathematical Sciences, *University of Delaware*, February 24, **2011**.

⋆ Some recent issues in non-iterative obstacle reconstruction by mechanical waves. *IPRPI Symposium on Inverse Problems and System Identification of Geosystems*, Inverse Problems Center, Rensselaer Polytechnic Institute, Troy, NY, March 29-30, **2010**.

⋆ Sampling methods for defect reconstruction by mechanical waves. Department of Mathematical Sciences, *University of Delaware*, November 12, **2009**.

⋆ Keynote lecture: On the model-based reconstruction of mechanical tissue properties from MRI measurements. *9th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Engineering*, Patras, Greece, October **2009**.

⋆ Bits and pieces put together to present a semblance of a whole. *Inverse Problems: Recent Progress and New Challenges*, Banff, Canada, November **2008**.

⋆ Advanced integral equation methods in computational mechanics. *CISM-IUTAM Summer School*, Udine, Italy, July 7-11, **2008** (5 lectures).

⋆ Keynote lecture: Elastic scatterer reconstruction via the adjoint sampling method. *COMPDYN 07*, ECCOMAS Thematic Conference, Rethymno, Crete, Greece, June **2007**.

⋆ The road often traveled: stress-wave characterization of layered systems. *University of California at Los Angeles*, Department of Civil Engineering, Los Angeles, CA, May **2007** .

⋆ What lies beneath: a new paradigm for elastic and viscoelastic wave imaging. *University of California at Los Angeles*, Department of Civil Engineering, Los Angeles, CA, December, **2006**.

⋆ On the probe methods for elastic-wave sensing. *Cornell University*, Department of Civil Engineering, Ithaca, NY, September, **2006**.

⋆ A new paradigm for the inverse scattering of elastic and viscoelastic waves. *Institute for Mathematics and its Applications*, University of Minnesota, Minneapolis, MN, November **2005**.

⋆ Can you hear the shape of a drum? *Institute for Mathematics and its Applications*, University of Minnesota, Minneapolis, MN, April **2005**.

⋆ Topological sensitivity for inverse scattering problems. *Georgia Institute of Technology* , Department of Civil Engineering, Atlanta, GA, April **2004**.

⋆ An alternate course to 3D seismic imaging. *Institute for Mathematics and its Applications*, (IMA Hot Topics Workshop: Adaptive Sensing and Multimode Data Inversion), University of Minnesota, Minneapolis, MN, June **2004**.

⋆ Application of radar and sonar technologies to rapid seismic probing. *Ecole Normale Superieure*, Department of Geological Sciences, Paris, France, June **2003**.

⋆ Novel techniques for 3D subsurface imaging. *University of Illinois at Urbana-Champaign*, Department of Civil Engineering, Urbana-Champaign, IL, September **2003**.

⋆ On the prediction of crack spacing in strained coatings. *Polish Academy of Sciences*, Institute of Fundamental Technological Research, Warsaw, Poland, June **2003**.

⋆ Topological sensitivity for inverse scattering problems. *Polish Academy of Sciences*, Institute of Fundamental Technological Research, Warsaw, Poland, June **2003**.

⋆ What lies beneath. *Technical University of Catalonia (UPC)*, Department of Geotechnical Engineering and Geo-Sciences, Barcelona, Spain, June **2002**.

⋆ On the axial vibration of buffered ring foundations. *University of Texas at Austin*, Department of Civil Engineering, Austin, TX, November **2001**.

⋆ Illuminating the ground's interior: wave analysis of dynamic plate load tests. *University of California, San Diego*, Department of Mechanical and Aerospace Engineering, San Diego, CA, October **2000**.

⋆ Wave-based characterization of lossy solids. *University of Southern California*, Department of Civil Engineering, Los Angeles, CA, October **2000**.

∗ Early detection of damage by stress waves. *5th U.S. National Congress on Computational Mechanics*, Boulder, CO, August **1999**.

∗ Singular boundary elements for mixed boundary value problems. *5h U.S. National Congress on Computational Mechanics*, Boulder, CO, August **1999**.

∗ Failure detection of smeared crack formulations. *University of Colorado Boulder*, Center for Acoustics, Mechanics, and Materials, Department of Mechanical Engineering, Bolder, CO, February **1994**.

∗ Soudan underground mine. *NSF Workshop on New Directions for the National Geotechnical Experimentation Site*, Golden, CO, February **2001**.

## SPONSORED RESEARCH

*Current projects*

- *Surface Bloch waves in phononic crystals: theory, manipulation, and applications to non-destructive evaluation*
  - **National Science Foundation**, Dynamics, Control and Systems Diagnostics (DCSD)
  - Grant CMMI-2519599: $507,424, 09/25–08/28
  - PI: B. Guzina, UMN, Co-PI: S. Meng, UT Dallas
- *Geo-processes in Mineral Carbon Storage (GMCS), Energy Frontier Research Center*
  - **Department of Energy**, Office of Science, Basic Energy Sciences (BES)
  - $11M, 08/22–07/26
  - Lead institution: UMN
  - PI: E. Detournay, UMN; Co-PIs: B. Guzina, P. Kang, J. Labuz, V. Voller

*Past projects*

- *Detecting Pile Length of Sign Structures and High Mast Poles*
  - **Minnesota Department of Transportation**
  - Grant #1003325: $198,000, 07/18–07/22
  - PI: B. Guzina, Co-PI: J. Labuz
- *Cask Mis-loads Evaluation Techniques*
  - **Department of Energy**, Nuclear Energy University Programs
  - Grant NEUP-16-10918: $3M, 10/16–11/21
  - PI: K. Willam, U Houston; Co-PIs: B. Gencturk, R. Ghanem, B. Guzina, T. Kozlowski, L-J Meng, R. Uddin, R. Meyer, W. Lyon, J. Rashid
- *3D Imaging and Characterization of Fractures in Rock*
  - **National Science Foundation**
  - Grant CMMI-1536110: $356,684, 09/15–08/19
  - PI: B. Guzina
- *Localized measurement and mapping of tissue nonlinear elasticity*
  - **National Institutes of Health**
  - Grant R21 EB023113-01: $444,760, 07/16–06/18
  - PI: M. Fatemi, Co-PI: B. Guzina
- *Probing Tissue Nonlinear Elasticity with Acoustic Radiation Force*
  - **Grant-in-Aid of Research, Artistry & Scholarship** (University of Minnesota)
  - Grant: $30,000, 08/14–02/15
  - PI: B. Guzina
- *Three-dimensional NDE of VHTR Core Components via Simulation-Based Testing*
  - **Department of Energy**, Nuclear Energy University Programs
  - Grant NEUP-10-862: $1.3M, 08/10–07/14
  - PI: B. Guzina, Co-PI's: J.F. Labuz, A. Fok
- *Quantitative Vibro-Acoustography: A Novel Approach to Viscoelastic Tissue Characterization*
  - **Minnesota Partnership for Biotechnology and Medical Genomics**
  - Grant #25-02: $559,362, 03/08–12/10
  - PI's: B. Guzina and M. Fatemi

- *Sensing Technology for the Subsurface Characterization of Biological Materials*
  - **National Science Foundation**
  - Grant CMMI-0726884: $200,001, 09/07–08/10
  - PI: B. Guzina, Co-PI: E. Ebbini
- *Quantitative Imaging with High Frequency Ultrasound*
  - **National Institutes of Health**
  - Grant R21 EB006893-01A1: $373,395, 04/07–03/09
  - PI: E. Ebbini , Co-PI: B. Guzina
- *Pavement Evaluation using Ground Penetrating Radar*
  - **Minnesota Department of Transportation**
  - Grant: $96,000, 09/04–04/08
  - PI: B. Guzina, Co-PI: J.F. Labuz
- *US-France Cooperative Research: Solutions for Rapid Seismic Imaging of Subterranean Objects*
  - **National Science Foundation**
  - Grant OISE-0340590: $18,000, 03/04–02/08
  - PI: B. Guzina
- *Back-analysis of constitutive properties for patient-specific vascular mechanics*
  - **Grant-in-Aid of Research, Artistry & Scholarship** (University of Minnesota)
  - Grant: $27,088, 01/08–06/09
  - PI: E. Longmire, Co-PI: B. Guzina
- *Next-Generation Imaging Technique for Underground Object Detection*
  - **National Science Foundation**
  - Grant CMMI-0324348: $272,984, 08/03–12/07
  - PI: B. Guzina, Co-PI: J.F. Labuz
- *Development of Improved Proof Rolling Methods for Roadway Embankment Construction*
  - **Minnesota Department of Transportation**
  - Grant: $110,000, 09/05–02/08
  - PI: A. Drescher, Co-PI's: J.F. Labuz, B. Guzina
- *Column supported embankment on Trunk Highway 241*
  - **Minnesota Department of Transportation**
  - Grant: $95,000, 03/06–11/07
  - PI: J.F. Labuz, Co-PI's: A. Drescher, B. Guzina
- *Pavement Rehabilitation Selection*
  - **Minnesota Department of Transportation**
  - Grant: $51,000, 06/05–09/07
  - PI: J.F. Labuz, Co-PI's: B. Guzina, G. Skok
- *Resilient Modulus Development of Aggregate Base Containing Recycled Bituminous Materials*
  - **Minnesota Department of Transportation**
  - Grant: $55,000, 03/05–06/07
  - PI: J.F. Labuz, Co-PI: B. Guzina
- *Ground Penetrating Radar Implementation*
  - **Minnesota Department of Transportation**
  - Grant: $45,000, 06/05–02/07
  - PI: J.F. Labuz, Co-PI: B. Guzina

- *Best Use of Cone Penetration Testing*
  - **Minnesota Department of Transportation**
  - Grant: $55,000, 11/05–08/07
  - PI: J. Labuz, Co-Pi: B. Guzina
- *Resilient Modulus and Strength of Base Course with Recycled Bituminous Material*
  - **Minnesota Department of Transportation**
  - Grant: $94,000, 12/01/04–01/30/07
  - PI: J.F. Labuz, Co-PI's: A. Drescher, B. Guzina
- *Moisture Effects on DCP and PVD Measurements - Phase II*
  - **Minnesota Department of Transportation**
  - Grant: $198,000, 11/02–05/06
  - PI: B. Guzina, Co-PI's: A. Drescher, J.F. Labuz
- *CAREER: A Rational Framework for Geotechnical Site Characterization by Wave Methods*
  - **National Science Foundation**
  - Grant CMMI-9875495: $310,000, 06/99–08/05
  - PI: B. Guzina
- *Computation of In-Situ Stress Distribution*
  - **Shell International**
  - Grant: $22,000, 06/04–12/04
  - PI: B. Guzina
- *Earth Pressure Behind a Retaining Wall*
  - **Minnesota Department of Transportation**
  - Grant: $178,000, 01/01–06/03
  - PI: A. Schultz, Co-PI's: A. Drescher, B. Guzina, J. F. Labuz
- *Enhanced Portable Device for Subgrade and Granular Base Characterization*
  - **Minnesota Department of Transportation**
  - Grant: $101,554, 01/01–12/02
  - PI: B. Guzina, Co-PI: A. Drescher
- *Moisture Effects on DCP and PVD Measurements - Phase I*
  - **Minnesota Department of Transportation**
  - Grant: $25,000, 11/01–10/02
  - PI: B. Guzina, Co-PI's: A. Drescher, J.F. Labuz
- *Research Experience for Undergraduates*
  - **National Science Foundation**
  - Grant CMMI-9875495: $8,125, 03/01–12/01
  - PI: B. Guzina
- *Prediction of Ground Motion due to Subterranean Excitation*
  - **DARPA, Department of Defense** (subcontract)
  - Grant: $24,000, 06/01–12/01
  - PI: B. Guzina
- *Delineation of the Stiff Layer and Groundwater Conditions from FWD Data*
  - **Minnesota Department of Transportation**
  - Grant: $60,303, 10/99–07/01
  - PI: B. Guzina

## SERVICE ACTIVITIES

### International and national committees

2024 Member, International Scientific Committee,
16th Int. Conference on Mathematical and Numerical Aspects of Wave Propagation – WAVES 2024, Berlin, Germany

2022 Member, International Scientific Committee,
15th Int. Conference on Mathematical and Numerical Aspects of Wave Propagation – WAVES 2022, Paris, France

2009 Member, Advisory Scientific Board,
International Symposium on Inverse Problems in Mechanics of Structures and Materials – ECCOMAS Thematic Conference, Lancut, Poland

2006 Member, International Scientific Committee,
9th Conference on Multiscale & Functionally Graded Materials, Kapolei, Hawaii

2005–2006 Chair, Technical Committee on Elasticity,
Engineering Mechanics Institute, ASCE

2001– Member, Technical Committee on Elasticity,
Engineering Mechanics Institute, ASCE

2000– Member, Technical Committee on Dynamics,
Engineering Mechanics Institute, ASCE

### Editorial duties

2004– Associate Editor, *Journal of Engineering Mechanics, ASCE*

2011– Associate Editor, *Lecture Notes in Mechanics, ASCE*

1999–2003 Editorial Board Member, *J. Geotechnical & Geoenvironmental Engineering, ASCE*

### Organization of symposia, sessions, seminars and workshops

2023 **Co-organizer (with B. Lombard)**,
Summer School on Wave Motion in Heterogenous Media: Analysis, Modeling and Design
*International Centre for Mechanical Sciences (CISM)*,
Udine, Italy, June 19-23, 2023.

2022 Co-chair (with L. Kallivokas, E. Taciroglu and H. Goh),
MS on Waves in Elastic Metamaterials and Phononic Crystals
MS on Inverse Problems – Theory and Applications
MS on Soil Dynamics and Wave Propagation in Geostructures
*EMI 2022: Engineering Mechanics Institute Conference,*
Baltimore, MD, May 31 – June 3, 2022.

2021 Co-chair (with L. Kallivokas, E. Taciroglu and H. Goh),
Minisymposium on Elastic Metamaterials, Lattices, Waves and their Interactions
Minisymposium on Inverse Problems – Theory and Applications
Minisymposium on Soil Dynamics and Wave Propagation in Geostructures
*EMI/PMC 2021: Engineering Mechanics Institute Conference,*
New York, NY, May 25–28, 2021.

2019 Co-chair (with C. Bellis, P. Barbone, A. Oberai and W. Aquino),
Minisymposium on Advances in Computational Methods for Inverse Problems,
*WCCM 2020: 14th World Congress on Computational Mechanics,*
Paris, France, July 19–24, 2020.

2019 Co-chair (with F. Cakoni), Minisymposium on Multi-Scale Inverse Problems & Optimization,
*AIP 2019: Applied Inverse Problems Conference,*
Grenoble, France, July 8–12, 2019.

2017 **Co-chair (with S. Gonella)**,
*WAVES 2017: 13th International Conference on Mathematical and Numerical Aspects of Wave Propagation*,
Minneapolis, MN, May 15–19, 2017.

2015 Co-chair (with E. Detournay), Hot Topics Workshop on Hydraulic Fracturing,
*Institute for Mathematics and Its Applications (IMA)*,
Minneapolis, MN, July 11–14, 2015.

2011 Co-chair (with M. Bonnet), Minisymposium on Inverse Problems,
*EURODYN 2011: 8th European Conference on Structural Dynamics,*
Leuven, Belgium, 4–6 July, 2011.

2010 Co-chair (with M. Bonnet), Minisymposium on Inverse Problems,
*ECCM 2010: 4th European Conference on Computational Mechanics,*
Paris, France, May 16–21, 2010.

2008 **Co-chair (with R. Ballarini and S. Wojtkiewicz)**,
*EM08: Inaugural International Conference of the Engineering Mechanics Institute,*
Minneapolis, MN, May 18–21, 2008.

2008 **Co-organizer (with M. Bonnet)**,
Summer School on Advanced Integral Equation Methods in Computational Mechanics
*International Centre for Mechanical Sciences (CISM)*,
Udine, Italy, June 25-29, 2008.

2008 Chair, Minisymposium on Inverse Problems,
*WCCM 2008: 8th World Congress on Computational Mechanics,*
Venice, Italy, June30–July 5, 2008.

2007 Co-chair, Minisymposium on Seismic Waveform Inversion,
*COMPDYN 2007: Computational Methods in Structural Dynamics & Earthquake Engineering,*
Crete, Greece, June 13–16, 2006.

2006 Co-chair, Minisymposium on Inverse Problems,
*WCCM 2006: 7th World Congress on Computational Mechanics*
Los Angeles, California, July 15–22, 2006.

2006 Chair, Technical Session on Inverse Problems,
*USNC/TAM 2006: 15th U.S. National Congress on Theoretical & Applied Mechanics*
Boulder, Colorado, July 25–30, 2006.

2005 Chair, Minisymposium on Inverse Problems,
*USNCCM 2005: 8th U.S. National Congress on Computational Mechanics*
Austin, Texas, July 24–28, 2005.

2004 Chair, Technical Session on Elasticity in Geomechanics,
*17th Engineering Mechanics Conference, ASCE*
Newark, Delaware, June 13–16, 2004 .

2004 Member, Local Organizing Committee, IABEM 2004,
*4th Symposium of the International Association of Boundary Elements*
Minneapolis, Minnesota, May 24–26, 2004.

2003 Co-chair, Technical Sessions (2) on Elasticity Methods in Geomechanics,
*16th Engineering Mechanics Conference, ASCE*
Seattle, Washington, July 16–18, 2003.

2002 Chair, Technical Session on Applied Elasticity in Geomechanics
*15th Engineering Mechanics Conference, ASCE*,
New York, New York, June 2–5, 2002.

2002 Member, Local Organizing Committee, IWBI 2002,
*International Workshop on Bifurcation and Instabilities in Geomechanics 2002*
Collegeville, Minnesota, June 2–5, 2002.

2000 Co-chair, Technical Sessions (3) on Soil Dynamics and Liquefaction,
*Geo-Denver 2000 Conference, ASCE*

Denver, Colorado, August 5-8, 2000.

2000 Chair, Technical Session on Inverse Problems in Dynamics and Wave Propagation,
*14th Engineering Mechanics Conference, ASCE*
Austin, Texas, May 21-24, 2000.

**University organizations**

2018– Founding member (with J. Haupt and V. Mandic) and member of the Steering Committee,
*Center for Excellence in Sensing Technologies and Analytics*, University of Minnesota, Twin Cities.

**Peer-review duties** (refereed journals)

1998– *J. Mechanics & Physics of Solids, Proc. Royal Society A, Geophysical Research Letters*
*SIAM J. Applied Mathematics, IEEE Trans. on Medical Imaging*
*IEEE Trans. on Ultrasonics, Ferroelectrics, & Frequency Control*
*J.Acoustical Society of America, Int. J. Solids & Structures*
*Quarterly J. Mechanics & Applied Mathematics, Trans. on Medical Imaging*
*Proc. Edinburgh Mathematical Society, J. Sound & Vibration*
*J. Mechanics of Materials & Structures, Eng. Analysis w/Boundary Elements*
*ASCE J. Engineering Mechanics, J. Computational Physics*
*Geophysics, Wave Motion, Inverse Problems, Computational Mechanics*
*ASCE J. Geotechnical & Geoenvironmental Eng.*
*J. Numerical & Analytical Methods in Geomechanics, Nature Communications*