Liliana Borcea
Department of Mathematics, University of Michigan
2074 East Hall, 530 Church Street
Ann Arbor, MI 48109-1043, USA.
+1-734-647-6579
borcea@umich.edu
www-personal.umich.edu/∼borcea/

Education

1992-1996	**Stanford University** Ph.D. in Scientific Computing and Computational Mathematics (SCCM).
1982-1987	**University of Bucharest, Applied Physics**, Magurele, Romania "Diploma de inginer", equivalent to an M.S. in Physics.

Honors and awards

2018	SIAM Fellow.
2018	Distinguished Women in Mathematics lecture, University of Texas, Austin.
2017	2017 AWM-SIAM Sonia Kovalevsky Lecture.
2015	Simons Fellow in Mathematics.
2013	Peter Field Collegiate chair, University of Michigan.
2012	Selection for SIGEST section of December 2012 SIAM Review to reprint the paper *Filtering deterministic layer effects in imaging* SIAM MMS, 7 (2009), 1267-1301.
2010	NSA Research Professorship, MSRI Berkeley.
2007	Noah Harding chair, Rice University.
2007	Invited plenary speaker, AMS West Section Meeting, Tucson, AZ.
2004	Invited topical speaker, SIAM Annual meeting, Portland, OR.
1996-1999	NSF Mathematical Sciences Postdoctoral Research Fellowship.
1994-1996	NSF Graduate Research Traineeship.
1992-1993	Stanford NASA Ames Global Change fellowship.
1983	Laureate of the national contest "Traian Lalescu" between all Romanian Physics Universities.
1982	Laureate of the Romanian national olympiad in Physics.

Employment

2013-present	**University of Michigan, Mathematics** Peter Field Collegiate Professor.
1996-2013	**Rice University, Computational and Applied Mathematics** Noah Harding Professor (2007-2013), Associate Professor (2001-2007), Assistant Professor (1996-2001).
1996-1997	**California Institute of Technology, Applied Mathematics** NSF Postdoctoral fellow.
1992-1993	**Stanford University and NASA Ames**, Moffet Field, California Research assistant.
1991-1992	**NASA Ames**, Moffet Field, California Research assistant.
1987-1990	**IPIM "13 Decembrie"**, Sibiu, Romania Computer programmer.

Visiting positions

2017	**ICERM Brown University, Providence.**
2013	**Ecole Normale Superieure, Paris.**
2010	**MSRI, Berkeley.**
2006 & 2000-2001	**Stanford University**.
2006	**INRIA Rocquencourt, France, Project POEMS**.
2005	**Istituto per le Applicazioni del Calcolo, Firenze, Italy**.
2003	**IPAM, UCLA**.

Editorial boards

- SIAM Journal on Multiscale Modeling and Simulations.
- SIAM Journal on Uncertainty Quantification.
- Inverse Problems.
- Inverse Problems and Imaging.
- Communications in Mathematical Sciences.
- Inverse Problems and its Applications book series. Co-editor in chief.

Professional activities

- **Current and recent advisory boards**
  - Scientific Advisory Board of the ICERM Institute, at Brown University, 2018-2021.
  - Scientific Advisory Board of the Johann Radon Institute for Computational and Applied Mathematics, Linz, Austria, 2017-2021.
  - Strategic Basic Research expert panel, The Research Foundation - Flanders, Brussel, 2018-2021.
  - International Scientific Advisory Board of the National Academy of Finland, for the Center of Excellence in Inverse Problems Research, 2012-2017.
  - Scientific Review Panel for the Pacific Institute for the Mathematical Sciences, UBC, Vancouver, Canada 2014-2017.
- **Major national/international committees**
  - Member of the SIAM Council, 2014-2017 and 2017-2020.
  - SIAM Coordinating Committee of Joint Mathematics Meeting (2014-2017), chair in 2015.
  - Prize committee CRM-Fields-PIMS Canada (Fall 2015 and 2016).
  - Chair of the SIAM Imaging Science Activity Group, 2010- 2011.
- **Organizer of selected conferences and workshops**
  - ICERM Brown University semester program on radar and geophysics imaging, Fall 2017.
  - MSRI Semester Program, Fall 2010.
  - Oberwolfach: Workshop ID: 2050, December 6-12, 2020, Workshop ID 1720, May 14-20, 2017; Workshop ID 1243, October 21-27, 2012; Seminar ID 0623a, June 4-10, 2010.
  - NSF/CBMS Conference in Mathematical Sciences: Imaging in random media, Rice University, May 12-16, 2008.
  - Conference on Applied Inverse Problems, Vancouver, June 25-29, 2007.

Current research grants:

1. Air Force Office of Research, AFOSR Award No.: FA9550-18-1-0131, *Inverse Scattering Problems in Time Dependent Random Media, Waveguides and Cavities*, sole PI. Project Period: 2/1/2018-1/31/2021.

2. NSF award DMS-1510429, *Hyperbolic Inverse Problems in Random Environments*, sole PI. Project Period: 09/01/2015-08/31/2019.

3. Office of Naval Research, ONR Award No.: N00014-17-1-2057, *A computational and theoretical study of forward and inverse scattering problems in heterogeneous media*, main PI. A. Mamonov at University of Houston is sub-contractor on this grant. Project Period: 01/01/2017-12/31/2019.

Older research grants (last 5 years):

1. Air Force Office of Research, AFOSR Award No.: FA9550-15-1-0118, *Imaging with Electromagnetic Waves in Complex Environments*, sole PI. Project Period: 04/01/2015-09/30/2017.

2. Air Force Office of Research, AFOSR, Award No.: FA9550-12-1-0117, *Mathematical Problems in Imaging in Random Media*, sole PI. Project Period: 01/04/2012-31/03/2015.

3. Office of Naval Research, Award No.: N000141410077, *Theory and Algorithms for Sensor Array Imaging and Motion Estimation in Random Media*. Project Period: 01/01/2014-10/31/2015.

4. Simons Foundation, Mathematics and Physical Sciences-Simons Fellows in Mathematics, Award No.: 339153, *Analysis of electromagnetic wave propagation and imaging in random media*, sole PI. . Project Period: 07/01/2015-12/31/2015.

5. NSF award DMS-0907746, *Mathematical Problems and Adaptive Algorithms for Imaging in Random Media*, sole PI. Project period: 09/15/2009-08/31/2013.

6. NSF award DMS-0934594, CMG Collaborative Research: *Subsurface Imaging and Uncertainty Quantification*, co-PI. Project period: 09/01/2009-08/31/2013.

Courses taught over the past 5 years

- Undergraduate: MATH 417 (Linear algebra with applications), (MATH 451 (Analysis on the real line).
- Graduate: MATH 555 (Complex analysis), MATH 557 (Applied asymptotic analysis), MATH 571 (numerical linear algebra), MATH 651 (Imaging in random media).

Short courses

1. *Imaging in random media* (4 lectures), NSF Summer School on Waves and Particles in Random Media: Theory and Applications, Colorado State University, May 21-25, 2018.
2. *Imaging and wave propagation in random waveguides* (3 lectures), Session "Etats de la Recherche", Inverse Problems and Imaging, Société Mathématique de France, Institut Henri Poincaré, 20 - 22 February, 2013.
3. *Imaging in random waveguides* (3 lectures), June 7-15, 2012, Workshop on waves and imaging in random media, Heraklion, Greece.
4. *Imaging in random media*, Introductory workshop on Inverse Problems (4 lectures), July 25-29, 2011, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.

5. *Discrete approaches to electrical impedance tomography* (6 lectures), Special trimester on Inverse Problems, June 13-17, 2011, University Autonoma, Madrid, Spain.
6. *Imaging in random waveguides* (4 lectures), Introductory workshop on Inverse Problems and Applications. MSRI, Berkeley, CA, August 23-27, 2010.
7. *Imaging in random waveguides* (4 lectures), Escuela Politécnica Superior, Universidad Carlos III de Madrid, Spain, June 2010.
8. *Discrete approaches to electrical impedance tomography* (4 lectures), Inverse Problems Graduate Student workshop, MSRI, Berkeley, CA, July 20-31, 2009.
9. *Imaging in Random Media* (4 lectures), Conference in honor of Alberto P. Calderón. IMPA, Rio de Janeiro, Brazil, January 10-19, 2007.
10. *Mathematical and Computational Problems in Interferometric Imaging*, Oberwolfach Seminar: with G. Papanicolaou and C. Tsogka, June 4 - 10, 2006 (6 lectures + problem sessions).
11. *Imaging in Random Media* (5 lectures), Summer course on Istituto per le Applicazioni del Calcolo, Firenze, Italy, June 2005.
12. *Coherent Interferometric Array Imaging in Random Media*, part of the AMS short course: "The Radon transform, inverse problems and tomography", the AMS annual meeting, Atlanta, January 3-4, 2005.
13. *Tutorial on Electrical Impedance Tomography* (4 lectures), September 11-12, 2003, IPAM, UCLA.
14. *An introduction to electrical impedance tomography*, Summer minicourse (10 hours lectures), August 18-22, 2003, University of Jyväskylä, Finland.
15. *Electrical Impedance Tomography* (5 lectures) in the Inverse Problems Workshop in MSRI, Berkeley, August 13-24, 2001.

Plenary talks, Colloquia, Seminars (last 4 years)

1. *Reduced order model approach for inverse scattering*, Applied Mathematics Colloquium, Department of Statistics, University of Chicago, March 7, 2019.
2. *Reduced order model approach for inverse scattering*, Applied Mathematics Colloquium, Columbia University, March 5, 2019.
3. *Reduced order model for active array data processing in inverse scattering*, Applied Mathematics Colloquium, University of Arizona, Tucson, November 30, 2018.
4. *Reduced order model for active array data processing in inverse scattering*, Clements Scientific Computing Seminar, Southern Methodist University, Dallas, November 29, 2018.
5. *Nonlinear processing of active array data in inverse scattering via reduced order models*, University College of London, London, October 5, 2018.
6. *Reduced order model for active array data processing in inverse scattering*, Computational Mathematics, Science and Engineering Colloquium, Michigan State, September 10, 2018.
7. *Nonlinear processing of active array data in inverse scattering via reduced order models*, plenary lecture, Conference on Mathematics of Wave Phenomena, Karlsruhe, July 23-27, 2018.
8. *Wave propagation and imaging in waveguides with turning points*, plenary lecture, INdAM Workshop 2018: Reconstruction methods for inverse problems, Rome, May 28 -June 1, 2018.
9. *Wave propagation in waveguides with turning points*, plenary lecture, Workshop: Transport and Localization in random media: theory and applications, Columbia University, New York, May 1-3, 2018.
10. *Laser beam imaging*, plenary lecture, Inverse problems in the Alps II Conference, Obergurgl, Austria, March 18-23, 2018.

11. *Untangling the nonlinearity in inverse scattering with data-driven reduced order models*, Distinguished Women in Mathematics lecture, University of Texas at Austin, February 5, 2018.
12. *Pulse reflection in random waveguides with turning points*, ICES seminar, University of Texas at Austin, February 6, 2018.
13. *Untangling the nonlinearity in inverse scattering with data-driven reduced order models*, seminar POEMS, at Ecole Polytechnique, France, December 7, 2017.
14. *Laser beam imaging*, Applied Physics seminar, Yale University, New Haven, November 15, 2017.
15. *Untangling the nonlinearity in inverse scattering with data-driven reduced order models*, Mathematics colloquium, Dartmouth University, Hanover, October 27, 2017.
16. *Untangling the nonlinearity in inverse scattering with data-driven reduced order models*, Numerical analysis and scientific computing seminar, Courant Institute, New York, October 6, 2017.
17. *Laser beam imaging*, plenary lecture, Random media workshop, ICERM, Brown University, Providence, September 25-29, 2017.
18. *Introduction to array imaging*, plenary lecture, Introductory workshop, ICERM, Brown University, Providence, September 11, 2017.
19. *Laser beam imaging*, ONR Program review, UCLA, Los Angeles, September 5-8, 2017.
20. *Pulse reflection in random waveguides with turning points*, applied analysis seminar, Penn State, August 30, 2017.
21. *Mitigating the uncertainty in imaging*, Sonia Kovalevsky Lecture at the 2017 SIAM annual meeting, Pittsburgh, July 2017.
22. *Pulse reflection in random waveguides with turning points*, plenary lecture, Conference on New Mathematics for a Safer World: Wave Propagation in Heterogeneous Materials, Edinburgh, Scotland, June 12-16, 2017.
23. *Pulse reflection in random waveguides with turning points*, plenary lecture, IMA for Novel Optical Materials workshop, Minneapolis, March 13-17, 2017.
24. *Pulse reflection in random waveguides with turning points*, seminar, Mathematics Department, University of Houston, March 2, 2017.
25. *Mitigating uncertainty in imaging*, plenary lecture, AFOSR Electromagnetics Contractors Meeting, Arlington, VA, January 9-13, 2017.
26. *Pulse reflection in random waveguides with turning points*, colloquium, Mathematics Department, Duke University, Durham, November 14, 2016.
27. *Pulse reflection in random waveguides with turning points*, plenary lecture, MCAIM Opening Symposium, Ann Arbor, MI, October 17-18, 2016.
28. *Electromagnetic wave propagation in random media*, plenary lecture, Oberwolfach Workshop on Theory and Numerics of Inverse Scattering Problems, September 18-24, 2016.
29. *Electromagnetic wave propagation in random media*, plenary lecture, Gene Golub SIAM Summer School on stochastic differential equations, Drexell University, Philadelphia, July 25-Aug 5, 2016.
30. *Electromagnetic wave propagation in random media*, colloquium, Department of Mathematics, University of Helsinki, May 2016.
31. *Analysis of electromagnetic wave propagation in random media*, plenary lecture, Workshop on Inverse Problem in Scattering and Imaging at Purdue University, April 23, 2016
32. *Polarization effects of electromagnetic waves in random media*, Mathematics Colloquium at WPI, Worcester Massachusetts, April 19, 2016.
33. *Polarization effects of electromagnetic waves in random media*, joint Schlumberger and Tufts University Colloquium, Cambridge Massachusetts, April 14, 2016.

34. *A model reduction approach to inversion*, Naval Academy seminar, Annapolis, March 28, 2016.
35. *Analysis of electromagnetic wave propagation in random media*, CMSE departmental inaugural colloquium talk, at Michigan State University, Lansing, MI, March 21, 2016.
36. *Analysis of electromagnetic wave propagation in random media*, Differential Equations Seminar, Department of Mathematics, University of Michigan, Ann Arbor, March 10, 2016.
37. *Polarization effects of electromagnetic waves in random media*, AFOSR Electromagnetics Contractors Meeting, Arlington, January 5-6, 2016.
38. *Resolution analysis of imaging with ℓ_1 optimization*, plenary lecture, Institute of Advanced Studies Workshop on Inverse Problems, Imaging and PDE's, Hong Kong, Sep 28 - Oct 2, 2015.
39. *Imaging with waves in complex environments*, plenary lecture, Workshop on reconstruction, stability and applications in inverse problems, Institut Henri Poincare (IHP) Paris, June 29 - July 3, 2015.
40. *Imaging in random media*, invited lecture, Seismic imaging- Latest developments workshop, EAGE Conference, Madrid, June 1, 2015.
41. *Model reduction for inverse parabolic problems*, plenary lecture, Conference on waves and Inverse Problems, Michigan State University, Lansing, April 9-11, 2015.
42. *Model reduction for inverse parabolic problems*, Applied Mathematics seminar, Stanford University, Palo Alto, April 1, 2015.
43. *Imaging with waves in complex environments*, plenary lecture, SIAM Great Lakes Section, Grand Rapids, May 2, 2015.
44. *Imaging with waves in complex environments*, PIMS/UBC/IAMS Distinguished Colloquium, Vancouver, October 31, 2014.
45. *Imaging in random media*, plenary lecture, Conference in Inverse Problems and Spectral Theory, Texas A&M University, College Station, Oct 17-19, 2014.
46. *Imaging with waves in complex environments*, plenary lecture, Continuum Models Discrete Systems - 13 Conference, Salt Lake City, Utah, July 21-25, 2014.
47. *Imaging with waves in complex environments*, plenary lecture, workshop on Theoretical and Applied Computational Inverse Problems, Schrödinger Institute, Vienna, Austria, May 5-16, 2014.
48. *Imaging with waves in complex environments*, Applied Mathematics seminar, Harvard University, Cambridge, April 7, 2014.
49. *Electromagnetic wave propagation in random waveguides*, Applied Mathematics seminar, Stanford University, Palo Alto, March 5, 2014.

Refereed publications (reverse chronological)

1. L Borcea, V Druskin, AV Mamonov, M Zaslavsky, *Robust nonlinear processing of active array data in inverse scattering via truncated reduced order models*, Journal of Computational Physics 381, 2019, p.1-26.
2. L Borcea, J Garnier, K Solna, *Wave propagation and imaging in moving random media*, SIAM J. Multiscale Modeling & Simulation 17 (1), 2019, p. 31-67.
3. L. Borcea, J. Garnier, *A ghost imaging modality in a random waveguide*, Inverse Problems, 34, 124007 (33pp), 2018.
4. L Borcea, V Druskin, AV Mamonov, M Zaslavsky, *Untangling nonlinearity in inverse scattering with data-driven reduced order models*, Inverse Problems 34(6), 2018, p. 065008 (27 pages).
5. L. Borcea, I. Kocyigit, *Passive array imaging in random media*, IEEE Transactions on Computational Imaging, 4(3), 459-469, 2018.

6. L. Borcea, J. Garnier, *Laser beam imaging from the speckle pattern of the off-axis scattered intensity*, SIAM J. Applied Mathematics, 78 (2), 2018, p. 677-704.
7. L. Borcea, I. Kocyigit, *A Multiple Measurement Vector approach to Synthetic Aperture Radar imaging*, SIAM J. Imaging Sciences, 11 (1), 2018, p. 770-801.
8. L. Borcea, J. Garnier, *Pulse reflection in a random waveguide with a turning point*, SIAM J. Multiscale Model. Simul., 15 (4), 2017, p. 1472-1501.
9. L. Borcea and I. Kocyigit, *Imaging in random media with convex optimization*, SIAM J. Imaging Sciences, 10(1), 2017, p. 147-190.
10. L. Borcea, G. Papanicolaou, C. Tsogka, *Time and direction of arrival detection and filtering for imaging in strongly scattering random media*, Waves in Random and Complex Media 27 (4), 2017, p. 664-689.
11. L. Borcea, J. Garnier, G. Papanicolaou, K. Solna, C. Tsogka, *Resolution analysis of passive synthetic aperture imaging of fast moving objects*, SIAM Imaging Sciences 10 (2), 2017, p. 665-710.
12. L. Borcea, W. Li, A. V. Mamonov, J. Schotland, *Second-Harmonic imaging in random media*, Inverse Problems, 33 (6), 2017, p. 065004 (37 pages).
13. L. Borcea, F. Guevara Vasquez, A. Mamonov, *A discrete Liouville transform for numerical reconstruction of Schrödinger potentials*, Inverse Problems and Imaging, 11 (4), 2017, p. 623-641.
14. L. Borcea, J. Garnier, D. Wood, *Transport of power in random waveguides with turning points*, Commun. Math. Sci., 15 (8), 2017, p. 2327-2371.
15. L. Borcea, DL Nguyen, *Imaging with electromagnetic waves in terminating waveguides*, Inverse problems and imaging, 10, 2016, p.915-941.
16. L. Borcea, J. Garnier, *Robust imaging with electromagnetic waves in noisy environments*, Inverse Problems, 32(10), 2016, p. 105010.
17. L. Borcea and K. Solna, *Pulse propagation in time dependent randomly layered media*, SIAM J. Multiscale Modeling and Simulation, 14(1), 2016, pp. 265-300.
18. L. Borcea and J. Garnier, *Derivation of a one-way radiative transfer equation in random media* , Phys. Rev. E 93, 022115, 2016.
19. L. Borcea and Josselin Garnier, *Polarization effects for electromagnetic wave propagation in random media*, Wave Motion, 63, 2016, p. 179-208.
20. L. Borcea, M. Moscoso, G. Papanicolaou and C. Tsogka, *Synthetic aperture imaging of direction and frequency dependent reflectivities*, SIAM J. Imaging Sciences, 9(1), 2016, pp. 52-81.
21. L. Borcea, I. Kocyigit, *Resolution analysis of imaging with ℓ_1 optimization*, SIAM J. Imaging Sciences, 8(4), 2015, pp. 2015-3050.
22. S. Acosta, R. Alonso, L. Borcea, *Source estimation with incoherent waves in random waveguides*, Inverse Problems, 31(3), 2015, p. 035013.
23. L. Borcea, *Imaging in random media*, solicited review, Handbook of Mathematical Methods in Imaging, Volume 2, Springer, 2015.
24. L. Borcea, *Imaging and wave propagation in random waveguides*, Lecture notes from session "Etats de la Recherche" at Institut Henri Poincaré, Panoramas et Synthéses 44, Société mathématique de France, 2014, p. 1-61.
25. R. Alonso, L. Borcea, *Electromagnetic wave propagation in random waveguides*, SIAM J. Multiscale Modeling and Simulation, 13(3), 2015, pp. 847-889.
26. L. Borcea, Y. Gorb, Y. Wang, *Asymptotic approximation of the Dirichlet to Neumann map of high contrast conductive media*, SIAM J. Multiscale Modeling and Simulation, 12(4), 2014, pp.1494-1532.
27. L. Borcea, J. Garnier, C. Tsogka, *A quantitative study of source imaging in random waveguides*, Comm. Math. Sci. , 13(3), 2015, pp. 749-776.

28. L. Borcea and J. Garnier, *Paraxial coupling of propagating modes in three-dimensional waveguides with random boundaries*, SIAM J. Multiscale Modeling and Simulation, 12 (2), 2014, 832-878.
29. L. Borcea, F. Gonzlez del Cueto, G. Papanicolaou, and C. Tsogka. *Filtering Deterministic Layer Effects in Imaging*, SIAM Review 54, no. 4 (2012): 757-798.
30. L. Borcea, T. Callaghan, G. Papanicolaou, *Motion Estimation and Imaging of Complex Scenes with Synthetic Aperture Radar*, Inverse Problems, 29 (5), 2013, 054011 (29pp).
31. L. Borcea, V. Druskin, A. Mamonov, M. Zaslavsky, *A model reduction approach to numerical inversion for a parabolic partial differential equation*, Inverse Problems, 30(12), 2014, p. 125011.
32. L. Borcea, T. Callaghan, G. Papanicolaou, *Synthetic Aperture Radar imaging and motion estimation via Robust Principal Component analysis*, SIAM J. Imaging Science, 6 (3), 2013, p. 1445-1476.
33. R. Alonso, L. Borcea, J. Garnier, *Wave propagation in waveguides with random boundaries*, Communications in Mathematical Sciences, 11(1), 2012, pp. 233-267.
34. L. Borcea, A.V. Mamonov, F. Guevara-Vasquez, *Study of noise effects in electrical impedance tomography with resistor networks*, Inverse Problems and Imaging, 7(2), 2013, pp.417-443.
35. L. Borcea, V. Druskin, F. Guevara Vasquez, A. V. Mamonov, *Resistor network approaches to electrical impedance tomography*, solicited review, Inside Out II, MSRI Publications, Volume 60, 2012, p. 55-118.
36. L. Borcea, J. Garnier, G. Papanicolaou, C. Tsogka, *Enhanced statistical stability in coherent interferometric imaging*, Inverse Problems, 27(8), 2011, p. 085003.
37. L. Borcea, J. Garnier, G. Papanicolaou, C. Tsogka, *Coherent interferometric imaging, time gating and beam forming*, Inverse Problems, 27, 2011, p. 065008.
38. L. Borcea and G. Papanicolaou and C. Tsogka, *Adaptive time-frequency detection and filtering for imaging in heavy clutter*, SIAM J. Imaging Science, 4(3), 2011, pp. 827-849.
39. L. Borcea, M. de Hoop, P. Kuchment and G. Uhlmann, *Inverse Problems and Applications*, MSRI Emissary, Fall 2010, p. 5-10.
40. R. Alonso, L. Borcea, G. Papanicolaou, C. Tsogka, *Detection and Imaging in strongly backscattering randomly layered media*, Inverse Problems, 27, 2011, p. 025004 (43pp.).
41. L. Borcea, L. Issa, C. Tsogka, *Source localization in random waveguides*, SIAM J. Multiscale Modeling Simulations, 8(5), pp. 1981-2022, 2010.
42. L. Borcea, V. Druskin, A.V. Mamonov, F. Guevara-Vasquez, *Pyramidal resistor networks for electrical impedance tomography with partial boundary measurements*, Inverse Problems, 26(10), 2010, p. 105009 (36pp).
43. L. Borcea, V. Druskin, A.V. Mamonov, *Circular resistor networks for electrical impedance tomography with partial boundary measurements*, Inverse Problems, 26 (4), 2010, p. 045010 (30pp.)
44. L. Borcea, T. Callaghan, G. Papanicolaou, *Synthetic Aperture Radar Imaging with Motion Estimation and Autofocus*, Inverse Problems 28, 2012, p.045006.
45. L. Borcea, F. González del Cueto, G. Papanicolaou, C.Tsogka, *Filtering random layering effects for imaging*, SIAM J. Multiscale Modeling and Simulation, 8(3), pp. 751-781, 2010.
46. L. Borcea, T. Callaghan, J. Garnier, G. Papanicolaou, *A universal filter for enhanced imaging with small arrays*, Inverse Problems 26 (1), 2010, 015006(29pp).
47. L. Borcea, G. Papanicolaou, C. Tsogka, *Subspace projection filters for imaging in random media*, Comptes rendus-mecanique, 2010, DOI 10.1016/j.crme.2010.07.013.
48. L. Borcea, F. González del Cueto, G. Papanicolaou, C. Tsogka, *Filtering deterministic layering effects in imaging*, SIAM J. Multiscale Modeling and Simulation, 7(3), pp. 1267-1301, 2009.
49. L. Borcea, G. Papanicolaou, F. Guevara Vasquez, *Edge illumination and imaging of extended reflectors*, SIAM Journal on Imaging Sciences, Vol. 1, No 1, pp. 75-114, 2008.

50. L. Borcea, G. Papanicolaou, C. Tsogka, *Optimal illumination and waveform design for imaging in random media*, Journal of Acoustical Soc. of America, 122, pp. 3507-3518, 2007.
51. L. Borcea, G. Papanicolaou, C. Tsogka, *Optimal waveform design for array imaging*, Inverse Problems, 23, 2007, pp. 1973-2021.
52. L. Borcea, V. Druskin, F. Guevara-Vasquez, *Electrical impedance tomography with resistor networks*, Inverse Problems, 24, p. 035013 (pp. 31), 2008.
53. L. Borcea, G. Papanicolaou, C. Tsogka, *Asymptotics for the space-time Wigner transform with applications to imaging*, Interdisciplinary Mathematical Sciences, Vol. 2, *Stochastic Differential Equations: Theory and Applications*. Volume in Honor of Professor Boris L Rozovskii, P. H. Baxendale and S. V. Lototsky editors. 2007.
54. L. Borcea, G. Papanicolaou, C. Tsogka, *Adaptive interferometric imaging in clutter and optimal illumination*, Inverse Problems, 22, 2006, pp. 1405-1436.
55. L. Borcea, G. Papanicolaou, C. Tsogka, *Coherent interferometry in finely layered random media*, SIAM J. Multiscale Modeling Simulation, 5 (1), 2006, pp. 62-83.
56. L. Borcea, G. Papanicolaou, C. Tsogka, *Coherent Interferometric Imaging in Clutter*, Geophysics, vol. 71, 2006, pp. S1165-S1175.
57. L. Borcea, *Robust interferometric imaging in random media*, The Radon transform, inverse problems, and tomography, 129–156, Proc. Sympos. Appl. Math., 63, Amer. Math. Soc., Providence, RI, 2006
58. L. Borcea, G. Papanicolaou, C. Tsogka, *Interferometric array imaging in clutter*, Inverse Problems 21, 2005, pp. 1419–1460.
59. L. Borcea, V. Druskin, L. Knizhnerman, L., *On the continuum limit of a discrete inverse spectral problem on optimal finite difference grids*, Communications on Pure and Applied Mathematics, 58 (9), 2005, pp. 1231-1279.
60. V. Druskin, L. Borcea, L. Knizhnerman, *On the sensitivity of Lanczos recursions to the spectrum*, Linear Algebra and its Applications, 396, 2005, pp. 103-125.
61. L. Berlyand, L. Borcea, A. Panchenko, *Network approximation for effective viscosity of concentrated suspensions*, SIAM Journal on Mathematical Analysis, 36(5), pp. 1580–1628, 2005.
62. J. Berryman, L. Borcea, G. Papanicolaou, C. Tsogka, *Statistical stability and time-reversal imaging in random media*, in Geometric Methods in Inverse problems and PDE Control, The IMA Volumes in Mathematics and its Applications, vol. 137, pp. 15-24, C. Croke, I. Lasiecka, G. Uhlmann and M. Vogelius, ed., Springer, 2004.
63. L. Borcea, G. Papanicolaou, C. Tsogka, *Theory and applications of time reversal and interferometric imaging*, Inverse Problems, 19, 2003, pp. S134-164.
64. L. Borcea, G. Gray, Y. Zhang, *Variationally Constrained Numerical Solution of Electrical Impedance Tomography*, Inverse Problems, 19(5), 2003, pp. 1159–1184.
65. L. Borcea, G. Papanicolaou, C. Tsogka, *A resolution study for imaging and time reversal in random media*, Contemporary Math, 333, 2003, pp. 63–77.
66. L. Borcea, *Electrical Impedance Tomography. Topical Review*, Inverse Problems, 18, No. 6, 2002, pp. R99-R136.
67. J. Berryman, L. Borcea, G. Papanicolaou, C., Tsogka, *Statistically stable ultrasonic imaging in random media*, Journal of Acoustical Soc. of America, 112, 2002, pp. 1509–1522.
68. L. Borcea, G. Papanicolaou, C. Tsogka, J. Berryman, J., *Imaging and time reversal in random media*, Inverse Problems, 18, No. 5, 2002, pp. 1247–1279.
69. L. Borcea, V. Druskin, *Optimal finite difference grids for direct and inverse Sturm Liouville problems*, Inverse Problems, 18, No. 4, 2002, pp.979-1001.

70. L. Borcea, *Nonlinear multigrid algorithm for imaging electrical conductivity and permittivity at low frequency*, Inverse Problems, 17, No. 2, 2001, pp. 329-359.
71. L. Borcea, O. Bruno, *On the Magneto-Elastic properties of Elastomer-Ferromagnet Composites*, Journal of the Mechanics and Physics of Solids, Vol. 49, No. 12, 2001, pp. 2877-2919.
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Postdoctoral adviser:

- Jörn Zimmerling 2018-2021.
- Shixu Meng 2018-2020.
- Ilker Kocyigit 2013-2017. Currently assistant professor at Koç University, Istambul, Turkey.
- Liem Dinh Nguyen 2013-2017. Currently assistant professor at Kansas State.
- Ricardo Alonso 2009-2013. Currently associate professor at PUC, Rio de Janeiro, Brazil.
- Thomas Callaghan 2010-2013. Currently at Nash Corporation, Nassau, Bahamas.

Graduate Students:

- Tianchen Zhao, Third year PhD student at University of Michigan.
- Derek Wood, Phd 2017 in Mathematics, University of Michigan. Currently research scientist at Systems & Technology Research (STR) in Woburn, MA.
- Wei Li, PhD 2016 (co-advised with John Schotland), Applied and Interdisciplinary Mathematics University of Michigan. Currently at Louisiana State.
- Yingpei Wang, PhD 2014, Computational and Applied Mathematics, Rice University. Currently at Google, Mountain View, CA.
- Sebastian Acosta, PhD 2014, Computational and Applied Mathematics, Rice University. Currently assistant professor at Baylor College of Medicine, Houston.

- Leila Issa, PhD 2010, Computational and Applied Mathematics, Rice University. Currently assistant professor at the Lebanese American University, Beirut, Lebanon.
- Alexander Mamonov, PhD 2010. Currently assistant professor of Mathematics at University of Houston.
- Fernando Gonzalez del Cueto, PhD 2009, Computational and Applied Mathematics, Rice University. Currently research scientist, Shell, Houston.
- Fernando Guevara-Vasquez, PhD 2007, Computational and Applied Mathematics, Rice University. Currently associate professor, Mathematics, University of Utah.
- Erric Dussaud (co-advised with Bill Symes), PhD 2006. Currently at Total, France.
- Genetha Gray, PhD 2002, Computational and Applied Mathematics, Rice University. Currently permanent staff member at Sandia, Livermore, CA.

Industry Collaborations: Schlumberger Doll Research Center, Cambridge, Massachusetts.