

## Liliana Borcea

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### Education

- 1994-1996     **Stanford University**  
Ph.D. in Scientific Computing and Computational Mathematics
- 1992-1994     **Stanford University**  
M.S. in Scientific Computing and Computational Mathematics
- 1982-1987     **University of Bucharest, Department of Applied Physics**, Romania  
“Diploma de inginer”, equivalent to an M.S. in Physics

### Research interests

Wave propagation and imaging in random media. Diffusion in high contrast composite media. Model reduction techniques for efficient numerical solutions of inverse problems for elliptic and parabolic partial differential equations.

### Honors and awards

- 2015           Simons Fellow in Mathematics
- April 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.
- Fall 2010     NSA Research Professorship, MSRI Berkeley.
- 04/2007       Invited plenary speaker, AMS West Section Meeting, Tucson, AZ.
- 07/2004       Invited topical speaker, SIAM Annual meeting, Portland, OR
- 12/2001       Outstanding Paper by a Young Presenter in Signal Processing at  
the Acoustical Society of America meeting, Fort Lauderdale, FL.
- 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	<b>Stanford University and NASA Ames</b> , Moffet Field, California Research assistant.
1991-1992	<b>NASA Ames</b> , Moffet Field, California Research assistant.
1987-1990	<b>IPIM “13 Decembrie”</b> , Sibiu, Romania Computer programmer.

### Visiting positions

2013	<b>Ecole Normale Superieure, Paris.</b>
2010	<b>MSRI, Berkeley.</b>
2006 & 2000-2001	<b>Stanford University.</b>
2006	<b>INRIA Rocquencourt, France, Project POEMS.</b>
2005	<b>Istituto per le Applicazioni del Calcolo, Firenze, Italy.</b>
2003	<b>IPAM, UCLA.</b>
2003	<b>University of Jyväskylä, Finland.</b>

### Editorial positions

- Editorial board SIAM Journal on Multiscale Modeling and Simulations.
- Editorial board SIAM Journal on Uncertainty Quantification.
- Editorial board of the journal Inverse Problems.
- Editorial board of the journal Inverse Problems and Imaging.

### Professional activities

#### • Advisory boards

- International Scientific Advisory Board of the National Academy of Finland, for the Center of Excellence in Inverse Problems Research, 2012-2017.
- Member of the Scientific Review Panel for the Pacific Institute for the Mathematical Sciences, UBC, Vancouver, Canada.

#### • Recent national and International committees

- Elected member of the SIAM Council, 2014-2017.
- Member of SIAM Coordinating Committee of Joint Mathematics Meeting (2014-2017).
- Member of the mathematics prize committee CRM-Fields-PIMS Canada (Fall 2015).

#### • Organizer of recent conferences and workshops

- ICERM Brown University, organizing committee of a semester program on radar and geophysics imaging, Fall 2017.
- Computational Inverse Problems workshop ID 1720, Oberwolfach, May 14-20, 2017.
- Conference on Applied Inverse Problems 2011, College Station, TX. Steering committee.
- SIAM Imaging Conference, April 12-14, 2010, Chicago. Organizing committee.

- MSRI Semester on Inverse Problems and Applications, August 16, 2010 - December 17, 2010. Organizing committee.
- Organizer of numerous mini-symposia at SIAM meetings.

### Tutorials and Short courses

1. 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.
2. Imaging in random waveguides (3 lectures), June 7-15, 2012, Workshop on waves and Imaging in random media, Heraklion, Greece.
3. Imaging in random media, Introductory workshop on Inverse Problems, (4 lectures) July 25-29, 2011, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.
4. Discrete approaches to electrical impedance tomography, Special trimester on Inverse Problems, (6 lectures), June 13-17, 2011, University Autonoma, Madrid, Spain.
5. Imaging in random waveguides. Introductory workshop on Inverse Problems and Applications. MSRI, Berkeley, CA, August 23-27, 2010.
6. Imaging in random waveguides. Escuela Politécnica Superior, Universidad Carlos III de Madrid, Spain, June 2010.
7. Discrete approaches to electrical impedance tomography, Escuela Politécnica Superior, Universidad Carlos III de Madrid, Spain, June 2010.
8. Discrete approaches to electrical impedance tomography, Inverse Problems Graduate Student workshop, MSRI, Berkeley, CA, July 20-31, 2009.
9. Conference in honor of Alberto P. Calderón. IMPA, Rio de Janeiro, Brazil, January 10-19, 2007. Organizers: Antonio Sa Barreto and Gunther Uhlmann. Teaching a course on *Imaging in Random Media* (4 lectures).
10. Oberwolfach Seminar: *Mathematical and Computational Problems in Interferometric Imaging*, with G. Papanicolaou and C. Tsogka, June 4 - 10, 2006 (6 lectures + problem sessions).
11. Summer course on *Imaging in Random Media* (5 lectures), 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.
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.

### Recent Invited Presentations

1. *Analysis of electromagnetic wave propagation in random media* (plenary lecture) Workshop on Inverse Problem in Scattering and Imaging at Purdue University, April 23, 2016
2. *Polarization effects of electromagnetic waves in random media*, Mathematics Colloquium at WPI, April 19, 2016, Worcester, MA.
3. *Polarization effects of electromagnetic waves in random media*, joint Schlumberger and Tufts University Colloquium, April 14, 2016, Cambridge, MA.
4. *A model reduction approach to inversion*, Naval Academy colloquium, March 28, 2016, Annapolis, MD.
5. *Analysis of electromagnetic wave propagation in random media*, CMSE departmental inaugural colloquium talk, at Michigan State University, Lansing, MI, March 21, 2016.
6. *Analysis of electromagnetic wave propagation in random media*, Differential Equations Seminar, Department of Mathematics, University of Michigan, Ann Arbor, March 10, 2016.
7. *Polarization effects of electromagnetic waves in random media*, AFOSR Electromagnetics Contractors Meeting, January 5-6, 2016, Arlington, VA.
8. *Resolution analysis of imaging with  $\ell_1$  optimization* (plenary lecture) Institute of Advanced Studies Workshop on Inverse Problems, Imaging and PDE's, Hong Kong, Sep 28 - Oct 2, 2015.
9. *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.
10. *Imaging in random media* (invited lecture), "Seismic imaging- Latest developments" workshop, EAGE Conference, June 1, 2015, Madrid, Spain.
11. *Model reduction for inverse parabolic problems* (plenary lecture), Conference on waves and Inverse Problems, Michigan State University, Lansing, April 9-11, 2015.
12. *Model reduction for inverse parabolic problems* (plenary lecture), Applied Mathematics Colloquium, Stanford University, April 1, 2015.
13. *A resolution study for imaging with  $\ell_1$  optimization* (mini symposium lecture), Applied Inverse Problems Conference, Helsinki, May 25-29, 2015.
14. *Imaging with waves in complex environments* (plenary lecture) SIAM Great Lakes Section, Grand Rapids, May 2, 2015.
15. *Model reduction for inverse parabolic problems* (45 minutes lecture) at the special session on Inverse Problems and Imaging, AMS Sectional Meeting, Michigan State Lansing, March 14, 2015.

16. *Imaging with waves in complex environments*, PIMS/UBC/IAMS Distinguished Colloquium, Vancouver, BC, October 31, 2014.
17. *Imaging in random media* (plenary lecture), Conference in Inverse Problems and Spectral Theory, Oct 17-19, 2014, Texas A&M University, College Station, TX.
18. *Imaging with waves in complex environments* (plenary lecture), Continuum Models Discrete Systems - 13 Conference, Salt Lake City, Utah, July 21-25, 2014.
19. *Imaging with waves in complex environments* (plenary lecture), workshop on Theoretical and Applied Computational Inverse Problems, Schrödinger Institute, Vienna, Austria, May 5-16, 2014.
20. *Imaging with waves in complex environments*, Applied Mathematics Colloquium, Harvard University, Cambridge, April 7, 2014.
21. *Electromagnetic wave propagation in random waveguides*, Applied Mathematics Colloquium, Stanford University, March 5, 2014.

### Refereed Publications

1. 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.
2. L. Borcea and J. Garnier, *Derivation of a one-way radiative transfer equation in random media*, Phys. Rev. E 93, 022115, 2016.
3. L. Borcea and Josselin Garnier, *Polarization effects for electromagnetic wave propagation in random media*, Wave Motion, in press 2016.
4. 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.
5. L. Borcea, I. Kocyyigit *Resolution analysis of imaging with  $\ell_1$  optimization*, SIAM J. Imaging Sciences, 8(4), 2015, pp. 2015-3050.
6. S. Acosta, R. Alonso, L. Borcea *Source estimation with incoherent waves in random waveguides*, Inverse Problems, 31(3), 2015, p. 035013.
7. L. Borcea, *Imaging in random media*, solicited review, Handbook of Mathematical Methods in Imaging, Volume 2, edited by Otmar Scherzer, to appear in 2015, Springer.
8. L. Borcea, *Imaging and wave propagation in random waveguides*, Lecture notes from session "Etats de la Recherche" at Institut Henri Poincaré, Panoramas et Synthèses 44, Société mathématique de France, 2014.
9. R. Alonso, L. Borcea, *Electromagnetic wave propagation in random waveguides*, SIAM MMS, 13(3), 2015, pp. 847-889.
10. L. Borcea, Y. Gorb, Y. Wang, *Asymptotic approximation of the Dirichlet to Neumann map of high contrast conductive media*, SIAM MMS, 12(4), 2014, pp.1494-1532.

11. L. Borcea, J. Garnier, C. Tsogka, *A quantitative study of source imaging in random waveguides*, *Comm. Math. Sci.* , 13(3), 2015, pp. 749-776.
12. L. Borcea and J. Garnier, *Paraxial coupling of propagating modes in three-dimensional waveguides with random boundaries*, *SIAM MMS*, 12 (2), 2014, 832-878.
13. L. Borcea, F. Gonzalez del Cueto, G. Papanicolaou, and C. Tsogka. "Filtering Deterministic Layer Effects in Imaging." *SIAM Review* 54, no. 4 (2012): 757-798.
14. L. Borcea, T. Callaghan, G. Papanicolaou, *Motion Estimation and Imaging of Complex Scenes with Synthetic Aperture Radar*, *Inverse Problems*, 29 (5), 2013, 054011 (29pp).
15. 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.
16. L. Borcea, T. Callaghan, G. Papanicolaou, *Synthetic Aperture Radar imaging and motion estimation via Robust Principal Component analysis*, *SIAM Imaging Sci.* 6 (3), 2013, p. 1445-1476.
17. R. Alonso, L. Borcea, J. Garnier, *Wave propagation in waveguides with random boundaries*, *Communications in Mathematical Sciences*, 11(1), 2012, pp. 233-267.
18. L. Borcea, *Interferometric imaging and time reversal in random media*, *Springer Encyclopedia of Applied and Computational Mathematics*, to appear.
19. Borcea, L., Mamonov, A. V., Guevara-Vasquez, F., *Study of noise effects in electrical impedance tomography with resistor networks*, *Inverse Problems and Imaging*, 7(2), 2013, pp.417-443.
20. 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.
21. L. Borcea, J. Garnier, G. Papanicolaou, C. Tsogka, *Enhanced statistical stability in coherent interferometric imaging*, *Inverse Problems*, 27(8), 2011, p. 085003.
22. L. Borcea, J. Garnier, G. Papanicolaou, C. Tsogka, *Coherent interferometric imaging, time gating and beamforming*, *Inverse Problems*, 27, 2011, p. 065008.
23. L. Borcea and G. Papanicolaou and C. Tsogka, *Adaptive time-frequency detection and filtering for imaging in heavy clutter*, *SIAM Imaging Science*, 4(3), 2011, pp. 827-849.
24. L. Borcea, M. de Hoop, P. Kuchment and G. Uhlmann, *Inverse Problems and Applications*, MSRI Emmisary, Fall 2010, p. 5-10.
25. Alonso, R., Borcea, L., Papanicolaou, G., Tsogka, C., *Detection and Imaging in strongly backscattering randomly layered media*, *Inverse Problems*, 27, 2011, p. 025004 (43pp.).
26. Borcea, L., Issa, L., Tsogka, C., *Source localization in random waveguides*, *SIAM Multiscale Modeling Simulations*, 8(5), pp. 1981-2022, 2010.

27. Borcea, L., Druskin, V., Mamonov, A. V., Guevara-Vasquez, F., *Pyramidal resistor networks for electrical impedance tomography with partial boundary measurements*, Inverse Problems, 26(10), 2010, p. 105009 (36pp).
28. Borcea, L., Druskin, V., Mamonov, A. V., *Circular resistor networks for electrical impedance tomography with partial boundary measurements*, Inverse Problems, 26 (4), 2010, p. 045010 (30pp.)
29. Borcea, L., Callaghan, T., Papanicolaou, G., *Synthetic Aperture Radar Imaging with Motion Estimation and Autofocus*, Inverse Problems 28, 2012, p.045006.
30. Borcea, L., González del Cueto, F., Papanicolaou, G., Tsogka, C., *Filtering random layering effects for imaging*, SIAM MMS, 8(3), pp. 751-781, 2010.
31. Borcea, L., Callaghan, T., Garnier, J., Papanicolaou, G., *A universal filter for enhanced imaging with small arrays*, Inverse Problems, Inverse Problems 26 (1), 2010, 015006(29pp).
32. Borcea, L., Papanicolaou, G., Tsogka, C., *Subspace projection filters for imaging in random media*, Comptes rendus-Mecanique, published 2010, DOI 10.1016/j.crme.2010.07.013.
33. Borcea, L., González del Cueto, F., Papanicolaou, G., Tsogka, C., *Filtering deterministic layering effects in imaging*, SIAM MMS, 7(3), pp. 1267-1301, 2009.
34. Borcea, L., González del Cueto, F., Papanicolaou, G., Tsogka, C., *Filtering random media effects in imaging*, Proceedings of Waves 2009, the 9th international conference on mathematical and numerical aspects of wave propagation, p. 376-377, editors: Helene Barucq, Anne-Sophie Bonnet-Bendhia, Gary Cohen, Julien Diaz, Abdelaaziz Ezziani, Patrick Joly, Institut National de Recherche en Informatique et en Automatique, Magique-3D & POEMS, 15-19 June 2009, Pau France,
35. Borcea, L., Papanicolaou, G., Guevara Vasquez, F., *Edge illumination and imaging of extended reflectors*, SIAM Journal on Imaging Sciences, Vol. 1, No 1, pp. 75-114, 2008.
36. Borcea, L., Papanicolaou, G., Tsogka, C., *Optimal illumination and waveform design for imaging in random media*, JASA 122, pp. 3507-3518, 2007.
37. Borcea, L., Papanicolaou, G., Tsogka, C., *Optimal waveform design for array imaging*, Inverse Problems, 23, 2007, pp. 1973-2021.
38. Borcea, L., Druskin, F., Guevara, F., *Electrical impedance tomography with resistor networks*, Inverse Problems, 24, p. 035013 (pp. 31), 2008.
39. Borcea, L., Papanicolaou, G. 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.
40. Borcea, L., Papanicolaou, G. C., Tsogka, *Adaptive interferometric imaging in clutter and optimal illumination*, Inverse Problems, 22, 2006, pp. 1405-1436.

41. Borcea, L., Papanicolaou, G. C., Tsogka, *Coherent interferometry in finely layered random media*, SIAM Multiscale Modeling and Simulation, 5 (1), 2006, pp. 62-83.
42. Borcea, L., Papanicolaou, G. C., Tsogka, *Coherent Interferometric Imaging in Clutter*, Geophysics, vol. 71, 2006, pp. S1165-S1175.
43. Borcea, L., *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
44. Borcea, L., Papanicolaou, G. C., Tsogka, *Interferometric array imaging in clutter*, Inverse Problems 21, 2005, pp. 1419–1460.
45. Borcea, L., Druskin, V., 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.
46. Druskin, V., Borcea, L., Knizhnerman, L., *On the sensitivity of Lanczos recursions to the spectrum*, Linear Algebra and its Applications, 396, 2005, pp. 103-125.
47. Berlyand, L., Borcea, L., Panchenko, A., *Network approximation for effective viscosity of concentrated suspensions*, SIAM Journal on Mathematical Analysis, 36(5), pp. 1580–1628, 2005.
48. Berryman J., Borcea L., Papanicolaou G., Tsogka C., *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.
49. Borcea, L., Papanicolaou, G. C., Tsogka, *Theory and applications of time reversal and interferometric imaging*, Inverse Problems, 19, 2003, pp. S134-164.
50. Borcea, L., Gray, G., Zhang, Y., *Variationally Constrained Numerical Solution of Electrical Impedance Tomography*, Inverse Problems, 19(5), 2003, pp. 1159–1184.
51. Borcea, L., Papanicolaou, G. C., Tsogka, *A resolution study for imaging and time reversal in random media*, Contemporary Math, 333, 2003, pp. 63–77.
52. Borcea, L., Papanicolaou, G., Tsogka C., *Resolution estimation for imaging and time reversal*, in "Mathematical and Numerical Aspects of Wave Propagation WAVES 2003", G. Cohen, E. Heikkola, P. Joly and P. Neittaanmaeki Editors, Springer, 2003, pp. 631-636.
53. Berryman J., Borcea L., Papanicolaou G., Tsogka C., *Imaging methods in random media*, Proceedings of conference: Acoustics mechanics and the related topics of mathematical analysis (AMRTMA), A. Wirgin ed., World Scientific, 2002, pp. 258-264.
54. Borcea, L., *Electrical Impedance Tomography. Topical Review*, Inverse Problems, 18, No. 6, 2002, pp. R99-R136.
55. Berryman, J., Borcea, L., Papanicolaou, G. C., Tsogka, C., *Statistically stable ultrasonic imaging in random media*, Journal of Acoustical Soc. of America, 112, 2002, pp. 1509–1522.



56. Borcea, L., Papanicolaou, G. C., Tsogka, C., Berryman, J., *Imaging and time reversal in random media*, Inverse Problems, 18, No. 5, 2002, pp. 1247–1279.
57. Borcea, L., Druskin, V., *Optimal finite difference grids for direct and inverse Sturm Liouville problems*, Inverse Problems, 18, No. 4, 2002, pp.979-1001.
58. Borcea, L., *Nonlinear multigrid algorithm for imaging electrical conductivity and permittivity at low frequency*, Inverse Problems, 17, No. 2, 2001, pp. 329-359.
59. Borcea, L., Bruno, O., *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.
60. Borcea L., Papanicolaou, G. C., *Low frequency electromagnetic fields in high contrast media*, review paper, Surveys on Solution Methods for Inverse Problems, D. Colton, H. W. Engl, A. Louis, J. R. McLaughlin, W. Rundell editors, Springer Vienna/New York, 2000, pp.195-233.
61. Borcea, L., Berryman, J. G., Papanicolaou, G. C., *Matching pursuit for imaging high contrast conductive media*, Inverse Problems 15, No. 4, 1999, pp.811-849.
62. Borcea, L., *Asymptotic Analysis of Quasistatic Transport in High Contrast Conductive Media*, SIAM Journal on Applied Mathematics, vol. 59, no.2, 1999, pp.597-639.
63. Borcea, L., Ortiz, M., *A multiscattering series for impedance tomography in layered media*, Inverse Problems, 15, No. 2, 1999, pp. 515-540.
64. Borcea L., Papanicolaou, G. C., *Network Approximation for Transport Properties of High Contrast Materials*, SIAM Journal on Applied Mathematics, vol. 58, no. 2, 1998, pp. 501-539.
65. Borcea, L., *Network Approximation of Electromagnetic Transport in High Contrast Conductive Media*, Mathematical and Numerical Aspects of Wave Propagation, John A. DeSanto, ed., SIAM, Philadelphia, 1998, pp. 526-528.
66. Borcea, L., Berryman, J.G., Papanicolaou, G.C., *Network asymptotics for high contrast impedance tomography*, Inverse problems in geophysical applications (Yosemite, CA, 1995), SIAM, Philadelphia, 1997, pp. 287-303.
67. Borcea, L., Papanicolaou G. C., *A Hybrid Numerical Method for High Contrast Conductivity Problems*, Journal of Computational and Applied Mathematics 87, no. 1, 1997, pp. 61-78.
68. Borcea, L., Berryman, J.G., Papanicolaou, G.C., *High Contrast Impedance Tomography*, Inverse Problems 12, 1996, pp. 835-858.

**Postdoctoral adviser:**

- Ilker Kocyigit 2013-2017
- Liem Dinh Nguyen 2013-2017
- Ricardo Alonso 2009-2013. Currently assistant professor at PUC, Rio de Janeiro, Brazil.
- Thomas Callaghan 2010-2013 Currently working at Nash Corporation, Nassau, Bahamas.

## Graduate Students:

- PhD thesis adviser:
  - **Current students:**
    - Derek Wood and Wei Li, University of Michigan.
  - **Students that completed the PhD:**
    - Wang Yingpei, PhD 2014, Computational and Applied Mathematics, Rice University. Now at Oracle, San Francisco. Thesis topic: *Asymptotic and numerical study of flow in high contrast media.*
    - Sebastian, Acosta PhD 2014, Computational and Applied Mathematics, Rice University. Now at Baylor College of Medicine, Houston. Thesis: *Inverse problems for the radiative transport equation.*
    - Leila Issa, PhD 2010, Computational and Applied Mathematics, Rice University. Assistant Professor at the Lebanese American University, Beirut, Lebanon. Thesis: *Source localization in cluttered acoustic waveguides.*
    - Alexander Mamonov, PhD 2010. Assistant Professor of Mathematics at University of Houston. Thesis: *Resistor networks and Optimal Grids for the Numerical Solution of Electrical Impedance Tomography with Partial Boundary Measurements.*
    - Fernando Gonzalez del Cueto, PhD 2009, Computational and Applied Mathematics, Rice University. Defended his thesis in August 2008. Research Scientist, Shell, Houston. Thesis: *Filtering random effects for imaging and velocity estimation in layered media.*
    - Fernando Guevara-Vasquez, PhD 2007, Computational and Applied Mathematics, Rice University. Now Assistant Professor, Mathematics, University of Utah. Thesis: *On the parametrization of ill posed inverse problems arising from elliptic partial differential equations.*
    - Erric Dussaud (co-advised with Bill Symes), PhD 2006. Now at Total, France. Thesis: *Velocity analysis in the presence of uncertainty.*
    - Genetha Gray, PhD 2002, Computational and Applied Mathematics, Rice University. Permanent staff member at Sandia, Livermore, CA. Thesis: *A Variational Study of the Electrical Impedance Tomography Problem.*

**Industry Collaborations:** Schlumberger Doll Research Center, Boston.