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Education and Employment

2016–	Assistant Professor, New College of Florida
2013–2016	Research Instructor, Northeastern University
2010–2013	Tamarkin Assistant Professor, Brown University
June 2010	Ph.D. Mathematics, Massachusetts Institute of Technology Thesis: *Index theorems and magnetic monopoles on asymptotically conic manifolds* Advisor: Richard B. Melrose
June 2004	B.A. Mathematics & Physics, Tufts University, *Highest Honors, Phi Beta Kappa*

Publications and Preprints

1. Partial compactification of monopoles and metric asymptotics, (with M. Singer),
   `arXiv:1512.02979`, (2015), 113 pages.
2. Blow-up in manifolds with generalized corners,
   `arXiv:1509.03874`, (2015), 33 pages.
3. Equivalence of string and fusion loop-spin structures, (with R. Melrose),
   `arXiv:1309.0210`, (2013), 48 pages.
4. Dimension of monopoles on asymptotically conic 3-manifolds,
   Bulletin of the LMS, vol. 45, no. 5, (2015), pp. 818–834.
   `arXiv:1310.2974`.
5. Loop-fusion cohomology and transgression, (with R. Melrose),
   Mathematical Research Letters, vol. 22, no. 4, (2015), pp. 1177–1192.
   `arXiv:1309.7674`.
6. A Callias-type index theorem with degenerate potentials,
   Communications in PDE, vol. 40, no. 2, (2015), pp. 219–264.
   `arXiv:1210.3275`.
7. Generalized blow-up of corners and fiber products, (with R. Melrose),
   Transactions of the AMS, vol. 367, no. 1, (2015), pp. 651–705.
   `arXiv:1107.3320`.
8. An index theorem of Callias type for pseudodifferential operators,
   Journal of K-Theory, vol. 8, no. 3, (2011), pp. 387–417.
   `arXiv:0909.5661`.
9. Accurate finite-difference and time-domain simulation of anisotropic media by subpixel smoothing, (with A.F. Oskooi and S. Johnson),
   Optics Letters, vol. 34, no. 18, (2009), pp. 2778–2780.
10. Perturbation theory for anisotropic dielectric interfaces, and application to sub-pixel smoothing of discretized numerical methods, (with A.F. Oskooi and S. Johnson),
    Physical Review E, vol. 77, no. 3, (2008), pp. 6611–6621.

11. Vortex core identification in viscous hydrodynamics, (with L. Finn and B. Boghosian). *Philosophical Transactions of the Royal Society A*, vol. 386, no. 1833, (2005), pp. 1937–1948.

Academic Awards

2011–2012	AMS-Simons Postdoctoral Travel Grant.
2009	Charles and Holly Housman Award for Excellence in Undergraduate Teaching, MIT.
2005	Presidential Fellowship, MIT.
2000–2004	National Merit Scholarship, Tufts University.

Academic Talks

Conferences and Workshops

2016	Dec	Geometric and spectral methods in PDE, BIRS Oaxaca.
	Jun	Geometry and topology of stratified spaces, CIRM.
2015	Dec	Analysis on singular manifolds, CMS Winter Meeting, Montreal.
	Jul–Aug	Metric and analytic aspects of moduli spaces, visiting fellow, Newton Institute.
2014	Nov	Geometric scattering theory and applications, BIRS.
	Jul	String geometry and loop spaces, Greifswald University.
	Jun	Analysis and topology in interaction, Cortona, Italy.
2013	Oct	Geometric and spectral analysis, AMS Sectional, Temple University.
	Mar	Geometric and singular analysis, Potsdam University.
2012	Jun	Spectral invariants on singular and non-compact spaces, CRM.
	May	Analysis and geometric singularities, Oberwolfach.
	Apr	Spring lecture series, University of Arkansas.
2011	Jun	Microlocal methods in mathematical physics and global analysis, Universität Tübingen.
2010	Aug	Topics in spectral and scattering theory, Penn State University.
	Jun	Talbot workshop on loop groups and twisted K-theory, Breckenridge, CO.
2009	Oct	Microlocal analysis and spectral theory on singular spaces, AMS Sectional, Penn State.
	Apr	Singularities at MIT.
2008	Aug	Second symposium on spectral and scattering theory, Federal University of Pernambuco.

Seminars

2015	Oct	Stanford University.
	Sep	MIT.
	Jan	Boston University.
2014	Dec	Purdue University.
	Oct	Northeastern University.
	Apr	Boston University.
	Mar	Worldwide Center of Mathematics.
2013	Nov	University of Montreal.
	Sep	Northeastern University.
	May	University College London.
	Mar	Boston University.
2012	Sep	Brown University.
	Mar	Purdue University.
2011	Oct	University of Illinois at Urbana-Champaign.
	Mar	Temple University.
	Mar	Northeastern University.
	Feb	Brown University.

2009 Dec Brown University.

Other Conferences Attended

2013 May Control, index, traces and determinants, Conference for Jean-Michel Bismut, Orsay.
2011 Oct Microlocal methods in spectral and scattering theory, Northwestern University.
Jan Geometric analysis, CIRM.
2010 Mar Geometric scattering theory and applications, BIRS.
2009 Jul Spectral theory and geometric analysis, Northeastern University.
2008 Jun Geometric applications of microlocal analysis, CIRM.

Teaching/Advising/Organizing

New College of Florida

2016 Fall Functional Analysis.
2016 Fall Multivariable Calculus.

Northeastern University

2016 Spr Graduate Topics in Differential Geometry.
2015 Fall Multivariable calculus.
Real analysis.
Putnam exam supervisor.
Spr Multivariable calculus.
2014 Fall Real analysis.
Spr Multivariable calculus.
Undergraduate directed study in differential topology.
2013 Fall Real Analysis.

Brown University

2013 Spr Abstract algebra.
2012 Fall Differential equations and nonlinear dynamics.
Spr Graduate algebraic topology II.
2011 Fall Introduction to mathematical cryptography.
Intermediate calculus.
Spr Honors linear algebra.
2010 Fall Honors vector calculus.
2010–2013 Freshman/sophomore advisor.
2011–2013 Organizer: Geometry and Topology seminar.

Massachusetts Institute of Technology

2010 Spr Differential equations (TA)
Win Multivariable calculus (TA)
2009 Spr Differential equations (TA)
Win Multivariable calculus (TA)
2008 Win Multivariable calculus (TA)
2007 Spr Differential equations (TA)