

# Dan-Andrei Geba

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## Personal

Born on July 21, 1973.  
American and Romanian Citizen.

## Education

Ph.D. in Mathematics, Princeton University, 2002.  
*Dissertation:* A Local Well-Posedness Result for the Quasilinear Wave Equation in  $\mathbb{R}^{2+1}$ .  
*Advisor:* Sergiu Klainerman.  
M.A. in Mathematics, Princeton University, 1998.  
B.A. in Mathematics, Al. I. Cuza University, Iasi, Romania, 1997.  
Diploma with Honors, Valedictorian of Class '97.

## Academic Experience

### University of Rochester, Department of Mathematics

Associate Professor, 2009–Present.  
Assistant Professor, 2006–2009.

### University of California, Berkeley, Department of Mathematics

Lecturer, 2005–2006.  
Charles B. Morrey Assistant Professor, 2002–2005.

### Mathematical Sciences Research Institute, Berkeley

Postdoctoral Fellow, Fall 2005.

## Research

### Work in Progress

Dan-Andrei Geba and Manoussos G. Grillakis, An Introduction to the Theory of Wave Maps and Related Problems, lecture notes volume to be published by World Scientific in 2016.

### Recent Publications

Dan-Andrei Geba, Kenji Nakanishi, and Xiang Zhang, Sharp Global Regularity for the 2 + 1-Dimensional Equivariant Faddeev Model, arXiv:1307.4721, *Int. Math. Res. Not.* 2015 (2015), rnv037-17.

Dan-Andrei Geba, Allan Greenleaf, Alex Iosevich, Eyvindur Palsson, and Eric Sawyer, Restricted Convolution Inequalities, Multilinear Operators and Applications, arXiv:1209.6574, *Math. Res. Lett.* 20 (2013), 675-694.

Dan-Andrei Geba, A. Alexandrou Himonas, and David Karapetyan, Ill-Posedness Results for Generalized Boussinesq Equations, arXiv:1209.0998, *Nonlinear Anal.* 95 (2014), 404-413.

Dan-Andrei Geba and Daniel da Silva, On the Regularity of the  $2 + 1$ -Dimensional Equivariant Skyrme Model, arXiv:1106.3974, *Proc. Amer. Math. Soc.* 141 (2013), 2105-2115.

Dan-Andrei Geba, Kenji Nakanishi, and Sarada G. Rajeev, Global Well-Posedness and Scattering for Skyrme Wave Maps, arXiv:1106.5750, *Commun. Pure Appl. Anal.* 11 (2012), 1923-1933.

Dan-Andrei Geba and Sarada G. Rajeev, Nonconcentration of Energy for a Semilinear Skyrme Model, arXiv:1006.3470, *Ann. Physics* 325 (2010), 2697-2706.

Dan-Andrei Geba and Sarada G. Rajeev, A Continuity Argument for a Semilinear Skyrme Model, arXiv:1005.1095, *Electron. J. Differential Equations* 2010 (2010), No. 86, 1-9.

Dan-Andrei Geba, How to Build and Coach a College Math Team, *Libertas Math.* 30 (2010), Volume Dedicated to the Centennial of "Alexandru Myller" Mathematical Seminar.

Dan-Andrei Geba, A Remark on an Equation of Wave Maps Type with Variable Coefficients, *Math. Res. Lett.* 16 (2009), 395-404.

## Teaching Experience

### Courses taught at University of Rochester

MTH 163, Ordinary Differential Equations.

MTH 164, Multidimensional Calculus.

MTH 165, Linear Algebra with Differential Equations.

MTH 190, Topics in Problem Solving.

MTH 235, Linear Algebra.

MTH 265H, Functions of a Real Variable (Honors).

MTH 266, Real Analysis II.

MTH 463, Partial Differential Equations (graduate).

MTH 467, Theory of Analytic Functions (graduate).

MTH 471, Real Analysis (graduate).

MTH 472, Functional Analysis (graduate).

MTH 565, Introduction to Hyperbolic PDE's (graduate).

MTH 565, Topics in Nonlinear Dispersive Equations (graduate).

MTH 565, An Introduction to the Theory of Wave Maps and Related Problems (graduate).

MTH 565, Small Data Global Regularity for Wave Maps and Related Problems (graduate).

Problem Solving Seminar.

### Courses taught at University of California, Berkeley

MATH 104, Introduction to Analysis.

MATH 105, A Second Course in Analysis.

MATH 110, Linear Algebra.

MATH 140, Metric Differential Geometry.

MATH 185, Introduction to Complex Analysis.

## Courses taught at Princeton University

MAT 203, Advanced Multivariable Calculus.

## Students Mentored

### Undergraduate Students

Bai Lin (2013-Present) - Putnam competition.

Brian McDonald (2012-Present) - Putnam competition.

Douglas Miller (2010-2015) - Honors thesis, Putnam competition.

Vincent Yu (2010-2014) - Putnam competition.

Xiaoqing Tang (2008-2012) - Putnam competition.

Kevin Lin (2008-2012) - Putnam competition.

Christopher Kauffman (2007-2011) - Honors thesis, Putnam competition, independent study.

Cheng Sun (2006-2009) - Honors thesis, Putnam competition.

Michael Wijaya (2006-2008) - Putnam competition.

Marcello Magno (2004) - Summer REU through the UCLEADS program.

Daniel Nolan (2003-2005) - Putnam competition.

David Karapetyan (2003-2004) - Putnam competition.

Neil Molino (1997-1999) - Putnam competition.

### Graduate Students

Matthew Creek (2010-2014) - Doctoral advisor.

*Dissertation:* Large-Data Global Well-Posedness for the 1 + 2-Dimensional Equivariant Faddeev Model.

Xiang Zhang (2010-2013) - Doctoral advisor.

*Dissertation:* A Small Data Global Well-Posedness Result for a 2+1-Dimensional Equivariant Faddeev Model.

Daniel da Silva (2008-2012) - Doctoral advisor.

*Dissertation:* Non-concentration of Energy in Generalized Wave Maps.

Suresh Eswarathan (2007) - Independent study finished with seminar presentation.

## Conferences, Colloquiums, Minicourses, and Seminars

### Conferences

Joint International Meeting of the American Mathematical Society and the Romanian Mathematical Society, Special Session on Nonlinear Evolution Equations, "1 Decembrie 1918" University of Alba Iulia, Alba Iulia, Romania, June 2013.

8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session on the Analysis and Applications of Nonlinear Wave Equations, University of Georgia, Athens, March 2013.

68th Midwest PDE Seminar, University of Notre Dame, Notre Dame, November 2011.

7th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session on the Analysis and Geometry of Nonlinear Evolution Equations, University of Georgia, Athens, April 2011.

AMS Fall Central Section Meeting, Special Session on Nonlinear Evolution Equations, University of Notre Dame, Notre Dame, November 2010.

“Nonlinear Hyperbolic Equations and Related Topics” Workshop, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, Italy, September 2007.

“Nonlinear Partial Differential Equations” Summer Microprogram, MSRI, Berkeley, July-August 2007.

SIAM Conference on Analysis of Partial Differential Equations, Minisymposium on Phase Space Transforms, Numerical Methods and the Wave Equation, Boston, July 2006.

56th Midwest PDE Seminar, University of Notre Dame, Notre Dame, December 2005.

AMS Fall Western Section Meeting, Special Session on Partial Differential Equations with Applications, University of Oregon, Eugene, November 2005.

FRG “Eigenfunctions of the Laplacian” Conference, University of Washington, Seattle, July 2005.

“Mathematical Circles and Olympiads” Workshop, MSRI, Berkeley, December 2004.

“Nonlinear Waves and Dispersive Equations” Workshop, MFO, Oberwolfach, Germany, October 2004.

Conference on Partial Differential Equations and Applications, University of Notre Dame, Notre Dame, August 2003.

“Curvature and Dispersion Effects in Nonlinear Partial Differential Equations” Workshop, MFO, Oberwolfach, Germany, April 2002.

#### Colloquiums

Colorado (2006), Mills College (2006), North Carolina (2006), Ohio (2006), Ohio State (2006), Purdue (2006), Rochester (2005, 2009), Rochester Institute of Technology (2011), Southern Illinois (2006).

#### Minicourses

“An Introduction to the Theory of Wave Maps and Related Problems”, Henan University, China, July 2015.

#### Seminars

Berkeley (2002–2004, 2010), Binghamton (2013), Cornell (2007), Johns Hopkins (2010), Maryland (2010), McMaster (2013), MSRI (2005), Notre Dame (2000, 2001, 2010–2011), Penn State (2002), Princeton (2002), Rochester (2006–2011, 2013).

## Professional Activities

Member, American Mathematical Society, 1997–Present.

Member, Mathematical Association of America, 2002–Present.

Co-organizer of:

8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session on the Analysis and Geometry of Nonlinear Evolution Equations, University of Georgia, Athens, March 2013;

AMS Fall Eastern Section Meeting, Special Session on Microlocal Analysis and Nonlinear Evolution Equations, Rochester Institute of Technology, Rochester, September 2012;

7th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session on the Analysis and Geometry of Nonlinear Evolution Equations, University of Georgia, Athens, April 2011.

Referee for: *Inventiones Mathematicae*, *Mathematical Research Letters*, *Nonlinearity*, *Proceedings of the American Mathematical Society*, *Proceedings of the Edinburgh Mathematical Society*, *Transactions of the American Mathematical Society*.

Creator and organizer of: Problem Solving Seminar (2006–Present), University of Rochester Math Olympiad (2007–Present), and Rochester Area Math Circle (2008–Present).

University service: college enrollment advisory committee (2009), ad-hoc faculty committee.

Departmental service: mathematical competitions adviser and coach (2006–Present), co-organizer of the analysis seminar (2006–Present), curriculum committee (2007–2010, 2011–2015), graduate committee (2011–2013, 2015–Present), hiring committee (2008–2010, 2015–Present), *Meliora* committee (2015–Present), publicity committee (2015–Present), coordinator of undergraduate research (2008–2010).

## Honors, Awards, & Fellowships

Simons Foundation Collaboration Grant Award for the “Regularity Issues for Equations of Mathematical Physics” research proposal, 2015.

Goergen Award for Excellence in Undergraduate Teaching, 2011.

Coach of the 10th (2008), 14th (2009), 12th (2010), 15th (2011), 17th (2013) ranked teams in the William Lowell Putnam Mathematical Competition.

NSF Career Award for the “Career: Topics in Nonlinear Wave Equations” research proposal, 2008.

Postdoctoral Fellowship, “Nonlinear Partial Differential Equations” Summer Microprogram, MSRI, 2007.

Mentor Recognition Award, University of California, San Diego, 2006.

Postdoctoral Fellowship, “Nonlinear Dispersive Equations” Program, MSRI, 2005.

Graduate Assistantship, Princeton University, 1998–2002.

Graduate Research Fellowship, Princeton University, 1997.

National Merit Scholarship, Al.I.Cuza University, 1992–1997.

Gold Medal, Balkan Mathematical Olympiad, Athens, Greece, 1992.

Member of the Romanian Mathematics Olympic Team, 1990–1992.

## Conferences and Workshops Attended

Joint International Meeting of the American Mathematical Society and the Romanian Mathematical Society, Special Session on Nonlinear Evolution Equations, “1 Decembrie 1918” University of Alba Iulia, Alba Iulia, Romania, June 2013.

8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Sessions on the Analysis and Geometry of Nonlinear Evolution Equations and the Analysis and Applications of Nonlinear Wave Equations, University of Georgia, Athens, March 2013.

AMS Fall Eastern Section Meeting, Special Session on Microlocal Analysis and Nonlinear Evolution Equations, Rochester Institute of Technology, Rochester, September 2012.

“Evolution Equations of Physics, Fluids, and Geometry: Asymptotics and Singularities” Workshop, Banff International Research Station, Canada, September 2012.

68th Midwest PDE Seminar, University of Notre Dame, Notre Dame, November 2011.

7th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Special Session on the Analysis and Geometry of Nonlinear Evolution Equations, University of Georgia, Athens, April 2011.

AMS Fall Central Section Meeting, Special Session on Nonlinear Evolution Equations, University of Notre Dame, Notre Dame, November 2010.

“Nonlinear Waves and Dispersive Equations” Workshop, MFO, Oberwolfach, Germany, September 2010.

“Nonlinear Hyperbolic Equations and Related Topics” Workshop, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, Italy, September 2007.

“Nonlinear Partial Differential Equations” Summer Microprogram, MSRI, Berkeley, July-August 2007.

SIAM Conference on Analysis of Partial Differential Equations, Minisymposium on Phase Space Transforms, Numerical Methods and the Wave Equation, Boston, July 2006.

AMS-MAA Joint Mathematics Meetings, San Antonio, January 2006.

56th Midwest PDE Seminar, University of Notre Dame, Notre Dame, December 2005.

“Geometric and Analytical Aspects of Nonlinear Dispersive Equations” Workshop, MSRI, Berkeley, November 2005.

AMS Fall Western Section Meeting, Special Session on Partial Differential Equations with Applications, University of Oregon, Eugene, November 2005.

Introductory Workshop in Nonlinear Dispersive Equations, MSRI, Berkeley, August 2005.

FRG “Eigenfunctions of the Laplacian” Conference, University of Washington, Seattle, July 2005.

“Mathematical Circles and Olympiads” Workshop, MSRI, Berkeley, December 2004.

“Nonlinear Waves and Dispersive Equations” Workshop, MFO, Oberwolfach, Germany, October 2004.

Conference on Partial Differential Equations and Applications, University of Notre Dame, Notre Dame, August 2003.

“Curvature and Dispersion Effects in Nonlinear Partial Differential Equations” Workshop, MFO, Oberwolfach, Germany, April 2002.

“Oscillatory Integrals and Nonlinear Partial Differential Equations” Workshop, UCLA/IPAM, Los Angeles, March 2001.

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