

Becca Thomases

RESEARCH FOCUS

Partial differential equations, nonlinear elasticity, Newtonian and non-Newtonian fluid dynamics, mechanics of deformable solids

EDUCATION

University of California, Santa Barbara. Ph.D. Mathematics: *Global Existence of 3D Nonlinear Incompressible Elastodynamics as a Limit of Slightly Compressible Materials*, June 2003.

Thesis advisor: Thomas Sideris.

University of California, Santa Barbara. M.A. Applied Mathematics, December 1999.

Vassar College. B.A. Mathematics, with honors, May 1997.

EMPLOYMENT

Assistant Professor. July 2007 – present.

Mathematics Department, University of California, Davis.

Courant Instructor / Assistant Professor. September 2003–June 2007.

Courant Institute of Mathematical Sciences, New York University.

Teaching Assistant / Associate. September 1997–June 2003.

University of California, Santa Barbara.

GRANTS, FELLOWSHIPS, AND AWARDS

NSF Research Grant: Viscoelastic Fluid Flow, DMS-0600668, 2006-2009 (Principal Investigator)

Graduate Division Dissertation Award, University of California, Santa Barbara, Spring 2003.

Academic Senate Outstanding Teaching Assistant Award, Campus wide competition with 4 awards annually, University of California, Santa Barbara, 2000-2001.

Department of Mathematics Teaching Award, University of California, Santa Barbara, 2000-2001.

Continuing Student Fee Fellowship, University of California, Santa Barbara, 2001–2003.

Doctoral Scholars Fellowship, University of California, Santa Barbara, 1997–2001.

The Mary Evelyn Wells and Gertrude Smith Prize, for excellence in mathematics, Vassar College, 1997.

PUBLICATIONS

“Coil-Stretch Transitions and Mixing in a Viscoelastic Fluid” (with M. Shelley) *In preparation* 2007.

“Emergence of Singular Structures in Oldroyd-B Fluids” (with M. Shelley) *To appear*, Physics of Fluids 2007.

“Global Existence for 3D Incompressible Isotropic Elastodynamics.” (with T. Sideris) *To appear*, Comm. Pure Appl. Math 2007.

“Elastic waves in exterior domains, Part II: Global existence with a null structure.” (with J. Metcalfe) Int. Math. Res. Not. (2007) rnm034-43.

“Local Energy Decay For Solutions of Multi-Dimensional Isotropic Symmetric Hyperbolic Systems” (with T. Sideris) J. Hyperbolic Differ. Equ. (2006), no. 4, 673-690.

“A Decay Theorem For Some Symmetric Hyperbolic Systems” (with C. Morawetz) J. Hyperbolic Differ. Equ. (2006), no. 3, 475–480.

“Global Existence For 3D Incompressible Isotropic Elastodynamics Via the Incompressible Limit” (with T. Sideris) *Comm. Pure Appl. Math.* 58 (2005), no. 6, 750–788.

“Long Time Behavior of Solutions to the 3D Compressible Euler Equations with Damping” (with T. Sideris and D. Wang), *Comm. PDE.* 28 (2003), no. 3-4, 795–816.

CONFERENCE TALKS

Joint program of Morningside Mathematics Center and Institute of Mathematics (Chinese Academy of Sciences), Kinetic Theory and Related Topics, 8 hour Lecture Series, Aug 8-16, 2004.

Courant Instructor Day, Courant Institute, September 2004.

AMS Eastern Section Meeting, Special Session on Partial Differential Equations and Applications, November 2004.

Joint Meetings, AMS-SIAM Special Session on Analysis and Applications in Nonlinear Partial Differential Equations, January 2005.

Eighth New Mexico Analysis Seminar, NMSU, Las Cruces, June 2005.

Workshop in Mathematical Physics: Trends and Perspectives, Stevens Institute of Technology, April 2006.

Interfacial Dynamics in Complex Fluids, Banff International Research Station, Banff, Canada, May 2006.

APS/DFD annual meeting, Tampa, FL, November 2006.

JAMI Conference “Nonlinear dispersive equations,” Baltimore, MD, March 2007.

MSRI Summer Microprogram on Nonlinear Partial Differential Equations, Berkeley, CA, July - August 2007.

SEMINAR / COLLOQUIUM TALKS

University of California, Santa Barbara, PDE Seminar, November 2002.

University of Minnesota, PDE Seminar, April 2003.

Courant Institute, Analysis Seminar, October 2003.

Vassar College, Mathematics Colloquium, November 2003.

University of Pittsburgh, PDE Seminar, January 2004.

Gettysburg College, Mathematics Colloquium, October 2004.

Courant Institute, Analysis Seminar, April 2005.

Pennsylvania State University, Pritchard Lab Seminar, October 2005.

Brown University, PDE Seminar, November 2005.

Carnegie Mellon University, Seminar, January 2006.

Rutgers University, Analysis Seminar & Mathematical Physics Seminar, January 2006.

University of Maryland, College Park, Seminar, January 2006.

Vassar College, Mathematics Colloquium, February 2006.

University of Colorado, Boulder, Seminar, February 2006.

Wellesley College, Mathematics Colloquium, February 2006.

Pennsylvania State University, Seminar, March 2006.

Trinity College, Dublin, Ireland, PDE Seminar, May 2006.

Colorado State University, Applied Math Seminar, October 2006.

University of Connecticut, Colloquium, December 2006.

Indiana University, Colloquium, January 2007.

University of California, Davis, Colloquium, January 2007.

North Carolina State University, Colloquium, January 2007.

Courant Institute, Analysis Seminar, January 2007.

New Jersey Institute of Technology, Fluid Mechanics Seminar, February 2007.

Princeton University, Analysis Seminar, April 2007.

University of Bonn, Germany, SFB Seminar, June 2007.

TEACHING EXPERIENCE

Courant Instructor, New York University, September 2003-June 2007.

Courses include: Introduction to Mathematical Analysis, Partial Differential Equations, Vector Calculus, Calculus, Quantitative Reasoning, Precalculus.

Graduate Instructor, University of California, Santa Barbara, Summers 1998-2003, Fall 2000.

Courses include: Linear Algebra, Differential Equations, Calculus, Precalculus.

Teaching Assistant, University of California, Santa Barbara, September 1997-June 2003.

Courses include: Differential Equations, Vector Calculus, Linear Algebra, Calculus.

SERVICE ACTIVITIES

Referee, Communications in Partial Differential Equations, Communications in Pure and Applied Mathematics, International Mathematics Research Notices, Journal of Mathematical Analysis and Applications, SIAM Journal of Mathematical Analysis.

Graduate Student Representative, Mathematics Department Graduate Committee, University of California, Santa Barbara, 2001-2002.

Panelist, EAO's 6th Annual Jr. High Conference, Early Academic Outreach, University of California, Santa Barbara, February, 2002.

Member, CETIS Distinguished Teaching Award Subcommittee, University of California, Santa Barbara, Spring 2002.

Panelist, Experienced Teaching Assistant Panel, Campus-wide Teaching Assistant Training, University of California, Santa Barbara, September 2001.

WORKSHOP PARTICIPATION

Euler Equations 250 years on, Aussois, France, June, 2007. Poster session.

Conference Board of the Mathematical Sciences (CBMS) conference, "Nonlinear Dispersive and Wave Equations", New Mexico State University, June 2005.

Institute for Mathematical Sciences (IMA) conference, "Connecting Women in Mathematical Sciences to Industry", September 2000.

Undergraduate Research Summer Institute (URSI), Advisor: Peter Pappas, Vassar College, Summer 1996.

PROFESSIONAL MEMBERSHIPS

American Mathematical Society

Society for Industrial and Applied Mathematics

Association for Women in Mathematics

American Physical Society