Curriculum Vitae of Marta Lewicka

Affiliation

Rutgers University,
Department of Mathematics,
110 Frelinghuysen Rd,
Piscataway, NJ 08854-8019

(email) lewicka@math.rutgers.edu
(url) http://www.math.umn.edu/~lewicka
(url) http://www.math.rutgers.edu/~lewicka

Nationality

Polish, US Permanent Resident

Research Interests

Mathematical Theory of Elasticity, Calculus of Variations, Differential Geometry,
Nonlinear Partial Differential Equations, Systems of Conservation Laws,
Reaction-Diffusion Equations, Nonlinear Analysis

Appointments

2011 - present	Associate Professor with Tenure Department of Mathematics, University of Pittsburgh
2010 - 2011	Associate Professor with Tenure School of Mathematics, University of Minnesota, Minneapolis
2010 - 2011	Assistant Professor - Tenure granted May 2011 Department of Mathematics, Rutgers University, New Brunswick
2005 - 2009	Assistant Professor School of Mathematics, University of Minnesota, Minneapolis
2002 - 2005	L.E. Dickson Instructor, Department of Mathematics, and Research Associate, Department of Astrophysics, University of Chicago
2000 - 2002	Post-doctoral Fellow Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany

Long-term visiting positions

2009 - 2010	Long term visitor at Institute for Mathematics and Its Applications, Minneapolis (Thematic Year on Complex Fluids and Complex Flows)
2008 - 2009	Visiting Professor, Department of Mathematics, Carnegie Mellon University
05 - 06/2002	EU Post-doctoral Fellow SISSA, Trieste, Italy

Education

2000 Ph.D. Mathematical Analysis,
Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy,
Thesis: *Topics in the Stability of Systems of Conservation Laws*. Advisor: A. Bressan.

1998 B.Sc. Computer Science,
Polytechnic of Czestochowa, Poland, Faculty of Computer Science.
Thesis: *Recursive Algorithms in Computer Graphics*. Advisor: H. Piech.

1996 M.Sc. and B.Sc. Mathematics,
University of Gdansk, Poland, Faculty of Mathematics, Physics and Informatics.
Thesis: *Multivalued Poincare Operator*. Advisor: L. Gorniewicz.

Grants

2009 - 2014 NSF CAREER award DMS-0846996 (Principal Investigator)
"Thin Shells - Problems in Nonlinear Elasticity and Fluid Dynamics" (400K$)

2007 - 2011 NSF grant DMS-0707275 (Principal Investigator)
"Dynamics and Stable Structures in Some Nonlinear PDEs" (150K$)

2007 - 2009 McKnight Land-Grant Professorship (90K$)
This is the University of Minnesota's Provost special scholarship awarded to about 10 junior faculty members of the University. It consists of a research grant in each of two years and a research leave in the second year

2003 - 2007 NSF grant DMS-0306201 (Principal Investigator)
"Well Posedness of Systems of Conservation Laws Near Solutions Containing Large Waves" (80K$)

Other grants and awards

2010 - 2015 NSF PIRE (Senior Personnel)
"Science at the Triple Point Between Mathematics, Mechanics and Materials Science" (6 million $)

2010 - 2013 Polish Ministry of Education grant KBN-N N201 547438 (co-PI)
"Mathematical Aspects of Fluid Mechanics" (400K PLN)

2010 IMA "Hot Topics Workshop" (co-PI)
"Strain induced shape formation: analysis, geometry and material science" (30K$)

2008 NSF grant DMS-0801551 (co-PI)
"Eleventh Riviere-Fabes Symposium on Analysis and PDE" (19,5K$)

2004 A special teaching award from the Department of Biology, U. of Chicago for designing and supervising an experimental undergraduate course sequence on Mathematical Biology.

Teaching

(i) Student and postdoc advising

2009-11	Initial advisor for Ph.D. students: E. Gunawan, G. Jaramillo, J. Leifeld (U of Minnesota)
2008-present	Advising a PhD student Hui Li (University of Minnesota, currently passed her oral exams and works towards completing her thesis, expected defense: Spring 2012)
2009-11	Mentoring a postdoc Pawel Konieczny (Carnegie Mellon University and IMA)
2007-08	Mentoring a postdoc Mohammadreza Raoofi (now at Shiraz University, Iran)
2006-08	Initial advisor for Ph.D. student Qixuan Wang (University of Minnesota)
2006-present	PhD Final Exam Member for: Haiying Wang, Fang Li, Linlin Su PhD Oral Exam Member for: Walter Rusin, Lu Li, Hui Li, Ivan Merev (University of Minnesota)
1999	Supervision of a Masters Thesis in Mathematical Analysis of a student Oliverio Alvarez, International Center for Theoretical Physics (Trieste, Italy)

(ii) REU Courses

Summer 2005, 2004	Control Theory and Hamilton-Jacobi Equations (University of Chicago)
Summer 2003	Topological Degree and Applications (University of Chicago) These were 2 week long intensive courses, followed by about 30 (preselected) local undergraduates, with the scope of rigorously introducing them to the given topics.

(iii) Undergraduate courses and practice sessions

Fall 2010	Calculus I for Mathematical and Physical Sciences, Math 151 (Rutgers) - 6 sections
Fall 2009	Differentiation and Applications, Math 1371 (Minnesota) - 3 sections
Fall 2005	Dynamical Systems and Chaos, Math 5535 (Minnesota)
Fall 2005	Putnam and North-Central Competition weekly practice sessions (MInnesota)
Spring 2005	Functional Analysis, Math 272 (Chicago)
Fall 2004	Topics in Mathematical Biology, Math 215, a directed reading course (Chicago)
Spring 2003	Introductory Mathematical Biology, Math 214 (Chicago) I designed and supervised, in collaboration with the Biology Department, the experimental Mathematical Biology sequence consisting of three learning components: lectures, weekly supplementary discussion sessions (supervision of 2 biology teaching assistants), and a students' conference at the end of the course.
Fall 2002	Advanced Engineering, Math 200 (Chicago)
Fall 2001	Mathematical Analysis III (University of Leipzig, Germany)
Spring 2001	Mathematical Analysis II (University of Leipzig, Germany)
Fall 2000	Mathematical Analysis I (University of Leipzig, Germany)

(iv) Graduate courses and seminars

Fall 2011	Real Analysis (Pittsburgh)
Spring 2011	graduate seminar on PDEs and Applications (Rutgers), coordinated with Y. Li, N. Sesum and Z. Han
Spring 2009	working group on Rigidity of Thin Structures (CMU), `http://www.math.cmu.edu/CNA/`
Spring 2008	graduate seminar on the Mathematical Theory of Elasticity, coordinated jointly with B. Cockburn and H. Stolarski (Civil Engineering Dept), attended by students from Math and Civil Engineering Departments (Minnesota),
2007-08	Functional Analysis, Math 8801-02, (Minnesota) `http://www.math.umn.edu/~lewicka/8801-2/functional.html`
2006-07	Real Analysis, Math 8601-02 (Minnesota), `http://www.math.umn.edu/~lewicka/8601-2/real.html`
Spring 2004	Stability of multidimensional shocks (Northwestern University)
Spring 2003	Advances in the theory of hyperbolic systems of conservation laws (University of Chicago)
Spring 2002	A series of talks on error bounds for the Glimm scheme (Univ. of Freiburg, Germany)

Conference and seminar organizing

Summer 2012 The First PIRE Summer School: "Science at the Triple Point Between Mathematics, Mechanics and Materials" This 2 week long program, coorganized with R. Kohn, M. Luskin and S. Muller, will consist of four 5rh tutorials and invited lectures.

Spring 2011 IMA Hot Topics Workshop "Metric induced shape formation: analysis and geometry"
http://www.ima.umn.edu/2010-2011/SW5.16-20.11/
This 1 week long workshop, coorganized with S. Venkataramani, is devoted to analytical aspects of morphogenesis, arising as a consequence of the inelastic effects associated with growth, swelling, shrinkage or plasticity. There are about 50 participants and we hope to stimulate interactions between applied mathematicians, physicists, analysts and geometers.

Summer 2009 IMA Summer Program on Conservation Laws and Applications.
http://www.ima.umn.edu/2008-2009/SP7.13-31.09/
This 3 week long summer program, coorganized with A.Bressan, G.Q. Chen and D. Wang, brought together some of the world's leading experts in the field of conservation laws, presenting the most significant theoretical advances and discussing applications. There were more than 120 participants. A conference proceedings volume has been edited by the organizers, to be published by Springer.

2007 - 11 Rivere-Fabes Symposium, University of Minnesota.
http://www.math.umn.edu/conferences/riv_fabes/
The Symposiums take place each April since 1998. The organizers invite distinguished leaders in diversified areas of Math Analysis, to present two-hour talks and other renowned specialists alongside with young researchers to give one-hour talks. The 2007-11 Symposia were very well attended; each time about 50 mathematicians participated, with more than half being graduate students.

Fall 2007 University of Minnesota PDE Seminar organizer and Chair.

Editor

IMA Volume in Mathematics and its Applications: Nonlinear Conservation Laws and Applications. (153) Springer Science and Business Media, LLC, New York, NY.

Other professional activities

2008, 09, 10, 11 Panelist for the NSF Division of Mathematical Sciences

2007 Proposal Reviewer for FQRNT: the research grant agency of Quebec (Canada)

Referee for: SIAM Journal of Mathematical Analysis, SIAM Journal of Applied Mathematics, SIAM Journal Control and Optimization, Indiana Univ. Math. Journal, Communications in Mathematical Physics, Communications in PDE, Journal of Differential Equations, Memoirs of AMS, Nonlinearity, Physica D. and many others.

Reviewer for: Math Reviews

U of Minnesota committee assignments

2009 Graduate Studies Committee

2007, 08, 09, 10, 11 Riviere-Fabes Symposium Committee

2006, 07 Graduate Studies Qualifying Exams Committee

2005 Putnam Exam Committee

Rutgers U committee assignments

2010 Graduate Studies Admission Committee

Research talks and seminars

2012 SIAM Gene Golub Summer School 'Flow, Geometric Motion, Deformation and Mass Transport in Physiological Processes' (Minneapolis)

2011 IMA Hot Topics Workshop 'Strain Induced Shape Formation: Analysis, Geometry and Materials Science', Universite Pierre et Marie Curie (Paris, France),
Workshop 'Pattern Formation and Multiscale Phenomena in Materials' at Oxford University (UK),
Max Plack Institute for Mathematics (Leipzig, Germany),
AMS Special session on PDE's and Control (Lincoln, Nebrasca),
AMS Special session 'Asymptotic Behavior for Nonlinear Evolution Equations' (Lincoln, Nebrasca),
3 talks at SIAM Conference on Analysis of Partial Differential Equations (San Diego)

2010 Joint PDE seminar of Brown and Boston University, U. of Michigan at Ann Arbor, Rutgers Univ.
Meeting 'Some mathematical problems of material science: effect of multiple scales and extreme aspect ratios' Banff International Research Station (Canada),
AMS Special Session 'Nonlinear Analysis and Geometry' (Syracuse), University of Arizona,
2 talks at AIMS Conference on Dynamical Systems, Diff. Equations and Applications (Dresden, Germany),
Aerospace Engineering and Mechanics Seminar (U of Minnesota), University of Warsaw,
Indiana University, BCAM - Basque Center for Applied Mathematics (Bilbao, Spain),

2009 Meeting on "Material Theories" Oberwolfach (Germany), University of Chicago,
SISSA (Trieste, Italy), Paris 11 (Orsay), Paris 6 (Pierre et Marie Curie), Iowa State University,
University of Houston, AMS meeting (Worcester, MA), University of Indiana (Bloomington),
Meeting 'Energy-Driven Systems' Carnegie Mellon University (Pittsburgh),
International Conference on Nonlinear Parabolic Problems (Bedlewo, Poland),
University of Pittsburgh, Instituto de Matematicas y Fisica Fundamental CSIC (Madrid, Spain),
IMA Summer Program on Conservation Laws and Applications (Minneapolis),
63rd Midwest PDE seminar (Purdue), SIAM PDE Conference (Miami),

2008 Czech Academy of Sciences (Prague, Czech Republic), University of Wisconsin,
CNA Summer School (Pittsburgh), Georgia Tech, Fields Institute (Toronto),
University of Pittsburgh, Vanderbilt University, University of Warsaw,

2007 University of Pittsburgh, First Joint AMS-PTM Meeting in Warsaw (Poland),

2006 Workshop on Reaction-diffusion and Free Boundary Problems in Banff (Canada),
University of Florence (Italy),

2005 University of Indiana (Bloomington), Northwestern University, UC Davis

2004 University of Minnesota, North Carolina State University, Trinity College (Dublin, Ireland),
University of Warsaw (Poland), AMS meeting, Houston

2003 University of Warsaw (Poland), University of Houston, UBC (Vancouver, Canada)
'Leggi di conservazione' conference, SISSA (Trieste, Italy)
First Chicago Area PDE Workshop, Northwestern University

2002 University of Chicago, University of Houston, UC Davis, Tulane University, Northwestern University, Georgetown University

2001 Max Planck Institute (Leipzig, Germany), University of Freiburg (Germany),
University of Darmstadt (Germany)

2000 Max Planck Institute (Leipzig, Germany), Ecole Normal Superieur (Lyon, France)
8th International Conference on Hyperbolic Problems, Magdeburg, Germany,

1999 SISSA (Trieste, Italy)

Undergraduate and educational talks

2010 Stevens Institute of Technology, Montclaire State University,
Rutgers University: Faculty Research Perspectives Seminar,
Rutgers University: Mathematicsl Careers and Ideas,
University of St. Thomas (Minneapolis), University of Minnesota Duluth,
University of Minnesota Talented Youth Mathematics Program (UMTYMP)