

Evelyn M. Lunasin

CONTACT INFORMATION	Department of Mathematics University of Michigan 530 Church St. Ann Arbor, MI 48109	<i>E-mail:</i> lunasin@umich.edu http://cam.ucsd.edu/~elunasin/ <i>Tel. No.:</i> (949) 278 3664
PROFESSIONAL PREPARATION	University of California, San Diego University of California, Irvine University of California, San Diego University of Arizona University of Michigan,	Math-Computer Science Mathematics Mathematics Mathematics Mathematics B.A., 2001 Ph.D., 2007 Postdoc Research Associate, 09/2007 – 08/2009 Visiting Assistant Professor, 08/2009 – 05/2010 Postdoctoral Assistant Professor, 07/2010 – current
HONORS AND AWARDS	UCI: <ul style="list-style-type: none">• Kovalevsky Award – Outstanding Ph.D Thesis (2007)• GAANN Fellowship (2006)• Faculty Endowed Fellowship (2005)• Dissertation Fellowship (2004)• Eugene Cota-Robles Award (2001-2003)• Physical Science Alumni Fellowship (2001) UCSD: <ul style="list-style-type: none">• <i>Cum Laude</i>, B.A. Math-Computer Science• Completed honors thesis with High Distinction award• Phi Beta Kappa Honor Society• McNair Post Baccalaureate achievement	
TRAVEL AWARDS + OTHER	AWM travel grant (2011), S.I.S.S.A. travel grant (2011), SIAM travel grant (2007, 2009, 2010, 2011), NSF travel grant (2011, 2012), NSF grant for REU student (2011).	
RESEARCH AND TEACHING APPOINTMENTS	Research Area: Optimal stirring strategies. Mixing. Global well-posedness for the 2D Boussinesq with anisotropic viscosity. Image inpainting. Analytic sub-grid scale α -models of turbulence, global regularity, power laws, direct numerical simulations. Reduced dynamical modeling for Rayleigh-Benard convection. University of Michigan <i>Postdoc Assistant Professor</i> Teaching assignments: Partial Differential Equations, Elem. Real Analysis. University of Arizona <i>Visiting Assistant Professor</i> Teaching assignments: Calculus, Numerical Analysis. University of California, San Diego <i>Postdoctoral Research Associate</i> Postdoctoral research at UCSD Mathematics Department, Computational and Applied Mathematics and Physics group. Teaching assignments: Calculus, Differential Equations and Linear Algebra.	July 2010 – current Aug, 2009 – June 2010 Sept. 2007 – August 2009

Los Alamos National Laboratory (LANL), Los Alamos, NM USA

Graduate Research

Summers of 2003-2006

Center for Nonlinear Studies (CNLS), Mathematical Modeling and Analysis.

Research on mathematical theory and direct numerical simulation certain α sub-grid scale turbulence models.

University of California, Irvine

Graduate Research

Mathematical and numerical study of turbulence models

2003–2007

Instructor **Differential Equations**

July - September, 2007

Instructor **Calculus**

September - December, 2006

Teaching Assistant

June, 2003 - June 2007

Teaching assistant to various courses in Mathematics: **Vector Calculus, Discrete Mathematics, Probability, Linear Algebra, and Mathematical Modeling and Analysis.**

PUBLICATIONS

1. E. Lunasin, Z. Lin, A. Novikov, A. Mazzucato and C. Doering, *Optimal Stirring Strategies with finite energy, finite power or finite palenstrophy constraint* Journal of Mathematical Physics **53**, 115611 (2012).
2. M. Ebrahimi, M. Holst and E. Lunasin, *The Navier-Stokes Voight for image inpainting*, IMA Journal of Applied Mathematics (2012) 1–26.
3. A. Larios, E. Lunasin and E.S. Titi, *Global well-posedness for the 2D Boussinesq system without heat diffusion and with anisotropic viscosity* (2012) (submitted) <http://arxiv.org/abs/1010.5024>.
4. A. Larios, E. Lunasin and E.S. Titi *2D Boussinesq system with inviscid Voight- α* (2012) (preprint).
5. B. Wen, N. Dianati, E. Lunasin, G. Chini and C. Doering, *New upper bounds and reduced dynamical modeling for Rayleigh-Benard convection in a fluid saturated porous layer* *Comm. Nonlinear Science and Num. Simulations*, **17** (5), (2011), 2191–2199.
6. M. Holst, E. Lunasin and G. Tsotgtgerel, *Analytical study of generalized α – models of turbulence*, Journal of Nonlinear Science, **20** (5), (2010), 523–567.
7. E. Lunasin, S. Kurien and E.S. Titi, *Spectral scaling of the Leray- α model for two-dimensional turbulence*, Journal of Physics A: Math. Theor. **41**, (2008), 344014.
8. E. Lunasin, *Analytical and numerical study of certain sub-grid scale model α –models of turbulence*. Ph.D. Thesis, University of California, Irvine, (2007).
9. E. Lunasin, S. Kurien, M. Taylor and E.S. Titi, *A study of the Navier-Stokes- α model for two-dimensional turbulence*, Journal of Turbulence **8**, (2007), 751–778.
10. Y. Cao, E. Lunasin, and E.S. Titi, *Global well-posedness of viscous and inviscid simplified Bardina turbulence models*, Communications in Mathematical Sciences **4**, no. 4, (2006), 823–847.
11. A. Ilyin, E. Lunasin and E.S. Titi, *A modified-Leray- α sub-grid scale model of turbulence*, Nonlinearity **19**, (2006), 879–897.

SERVICE TO THE PROFESSION: MENTORING

- Graduate Research University of Michigan (Sept. 2012–Dec. 2012). Student: **Vignesh Suresh**. Dept. of Aerospace Engineering. Project topic: Optimization of the Navier Stokes image inpainting code.
- REU (Research Experiences for Undergraduate) Program, University of Michigan (2012). Student: **James P. Vogel**. Thesis topic: Stability of the two-dimensional damped Navier-Stokes equations. Dept. of Mathematics. Winner of the (6 awards of 70+ students) Young Mathematicians Conference Outstanding Presentation Competition. (<http://www.ymc.osu.edu/2012/>)
- Independent Reading (Jan.– June 2012). Student: **Soon Hoe Lim**. Introduction to the Mathematical Theory of Navier-Stokes Equations.

- Undergraduate Research Opportunity Program (UROP), University of Michigan (2010-2011). Student: **George Pantazis**. Dept. of Aerospace and Mechanical Engineering. Research Topic: Parameter study of turbulence models for image inpainting. Winner of the Blue Ribbon Award for UROP Best Poster Presentation.
- UC Irvine School of Physical Sciences Mentor Program (2008). Student: **Sevana Petrosi**

SERVICE TO THE
PROFESSION:
ORGANIZER,
MANUSCRIPT
REVIEW

- Invited Mini-symposium co-organizer for the AWM Research Symposium March 2013, Santa Clara, California. Special Session: "*Analysis of PDEs in Newtonian and Non-Newtonian Fluid Mechanics*".
- Invited Mini-symposium organizer for the SIAM Conference on Analysis of Partial Differential Equations held at the San Diego Marriot Mission Valley, San Diego California from November 14-17, 2011. Special Session: "*Mathematical Foundations of Turbulent Flows and Its Application to Geophysics*" which deals with the recent advances in the mathematics of turbulent flows as well as recent advances in reduced dynamical modeling for flows in Geophysics and recent techniques in its numerical computation.
- Member of the organizing committee for the Women in Science and Engineering (WISE), UCSD (2008).
- Organizer of the University of California, Irvine–Women Mathematician Noetherian Ring (2005-2007).
- Manuscript Review for Riv.Mat.Univ.Parma (Parma Mathematical Journal) (2008), (2011), Monatshefte fuer Mathematik (2008), Journal of Mathematical Analysis and Applications (2010), J. Math. Phys. (2011), (2012), Phys. Lett. A (2012)

CONFERENCE,
SEMINAR
PRESENTATIONS

<i>SIAM Meeting, Snowbird Utah, mini-symposium</i>	invited talk	May 2013
<i>AWM Research Symposium, Sta. Clara CA, mini-symposium</i>	invited talk	March 2013
<i>Oberwolfach Workshop on Geophysical. Fluid Mech., Germany, session</i>	invited talk	Feb 2013
Math Circle, University of Michigan,	invited talk	Oct 2012
PDE/Applied Math Seminar, Indiana University Bloomington,	invited talk	Oct 2012
Computational and Applied Mathematics Colloquium, Penn State University,	invited talk	Sept 2012
CCMA Luncheon Seminar, Penn State University,	invited talk	Sept 2012
AIMS conference, Orlando, FL, mini-symposium	invited talk	July 2012
Fields Analysis Working Group Seminar, Toronto, CA,	invited talk	April 2012
Incompressible Fluids, Turbulence and Mixing, Carnegie Mellon University, Pittsburgh, PA,	contributed talk	Oct 2011
Xi'an China, International Conference Peter Constantin 60th b-day,	invited talk	June 2011
University of Michigan AIMS seminar	invited talk	Jan 2011
University of Michigan Research Highlight Talk		Aug 2010
IMA Analysis and Computation of Incompressible Fluid Flow (poster)		Feb 2010
University of Arizona Analysis Dynamics and Applications Seminar	invited talk	Feb 2010
University of Arizona Analysis Dynamics and Applications Seminar	invited talk	Dec 2009
SIAM Applications of Dynamics Systems (Utah) – mini-symposium	invited talk	May 2009
AMS Spring SE Section Meeting Special Session (North Carolina) “Advancements in turbulent flow modeling and computation” – mini-symposium	invited talk	April 2009
AMS Sectional Meeting Nonlinear PDE (San Francisco)– mini-syposium	invited talk	April 2009
Mathematical and Computational Physics seminar (UCSD)	invited talk	April 2008
Mathematical and Computational Physics seminar (UCSD)	invited talk	March 2008
APS-DFD 2007(Salt Lake City, Utah) –	contributed talk	November 2007
Mathematical and Computational Physics seminar (UCSD)	invited talk	November 2007
ICIAM 2007 (Zurich, Switzerland) – mini-symposium	invited talk	July 2007
<i>D²HFest</i> (Lausanne,Switzerland) – poster presentation		July 2007
SIAM GS07 (Santa Fe, NM)– mini-symposium	invited talk	March 2007
Mathematical Modeling and Analysis (LANL)		August 2006
SIAM Annual Meeting (Boston, MA)–	contributed talk	July 2006
MSRI Conference – poster presentation		May 2006
Women in Mathematics: <i>The Legacy of Ladyzhenskaya and Oleinik.</i>		
http://topo.math.auburn.edu/pub/201gas-proceedings/		

Mathematical Modeling and Analysis (LANL)	August 2005
Mathematical Modeling and Analysis (LANL)	August 2004
UCSD Summer Research Conference	July 2001
UCSD Department of Mathematics Honors Presentation	June 2001
UC Berkeley Western McNair Scholars Symposium	May 2001