

Eva M. Strawbridge

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PARTICULARS

EDUCATION

University of California, Davis Ph.D. in Applied Mathematics Advisor: Dr. C. J. Benham	Davis, CA 2009
University of Alaska, Anchorage B.S. in Mathematics and Anthropology	Anchorage, AK 2004

NATIONALITY

U.S. Citizen

RESEARCH INTERESTS

Biological applications of low Reynolds number fluid dynamics, elastic mechanics, PDEs, asymptotics, dynamical systems, modeling, biomechanics, mathematical biology, and applied mathematics.

ACADEMIC APPOINTMENTS

Assistant Professor Department of Mathematics and Statistics	James Madison University 2012-present
L. E. Dickson Instructor (Postdoc) Department of Mathematics	University of Chicago 2009-2012
Research Fellow Genome Center	University of California, Davis 2009
Graduate Student Researcher Department of Mathematics	University of California, Davis 2004-2009
Undergraduate Research Assistant Department of Anthropology	University of Alaska, Anchorage 2004
Research Intern National Security Agency	Fort Meade 2003

PUBLICATIONS

- Braun, R. *et al.* 2012. “Structure of the Lipid Layer of Tear Film.” *Proceedings of the MBI BioSciences Problem-Solving Workshop*. MBI, Ohio State University.
- Strawbridge, E. & Wolgemuth, C. 2012. “Surface Traction and the Dynamics of Elastic Rods at Low Reynolds Number.” *Physical Review E*, **86**:031904.
- Podder, C. N., Sharomi, O., Gumel, A. B., and Strawbridge, E. 2011. “Mathematical Analysis of a Model for Assessing the Impact of Antiretroviral Therapy, Voluntary Testing, and Condom Use in Curtailing HIV”, *Differential Equations and Dynamical Systems*, **19**:283-302.
- E. Strawbridge, G. Benson, Y. Gelfand, & C. Benham. 2010. “Genomic Distribution of Inverted Repeats in *Saccharomyces cerevisiae*”, *Current Genetics*, **56**:321-340.
- E. Strawbridge. “Dynamics, Mechanics, and Structures of DNA as an Elastic Rod”, *Thesis*. 2009
- Alimadad, A. *et al.* 2006. “Report on the Impact of HIV Testing on the Spread of HIV Infection”, *Proceedings of the 10th PIMS Industrial Problem Solving Workshop*. IRMACS Centre.

RESEARCH AND EDUCATION GRANTS

- Summer Research Grant, 2013
- Center for Undergraduate Research in Mathematics (CURM) Grant, 2013-2014
- University of Chicago Physical Science Division Opportunity Fund Minigrant, 2010-2011
- AWM Mentoring Travel Grant, 2011

CONFERENCE AND WORKSHOP TRAVEL GRANTS

- MBI Workshop for Young Researchers in Math Biology Travel Grant, 2012
- MBI Problem Solving Workshop Travel Grant, 2012
- SIAM-LS Young Researcher Travel Grant, 2012
- IPAM WIMSymposium Travel Grant, 2011
- AWM Postdoctoral Workshop (JMM) Travel Grant, 2011
- AWM Graduate Student Workshop (JMM) Travel Grant, 2009

HONORS AND AWARDS

- Invited Speaker and Postdoctoral Workshop Participant at the IPAM WIM Symposium 2011.
- AWM Postdoctoral Workshop Participant, New Orleans, LA JMM 2011.
- Dissertation Year Fellowship, University of California, Statewide 2008-2009.
- AWM Graduate Student Workshop Participant, Washington D.C. JMM 2009
- MPS Graduate Student’s Prize, University of California, Davis, 2008.
- Community Service Award Recipient, University of California, Davis, 2008.
- Outstanding Graduate Student Teaching Award, University of California, Davis 2008.
- P.E.O. Scholar Award, 2008-2009.
- Charles and Marjorie Elliot Graduate Fellowship, University of California, Davis, 2007-2008.
- AAUW Graduate Fellowship, 2007.
- GAANN Fellowship, University of California, Davis, 2006-2007.
- Professor for the Future Fellow, University of California, Davis, 2006-2007.
- VIGRE NSF Graduate Summer Fellowship, University of California, Davis, 2006, 2007.
- Eugene Cota-Robles Diversity Fellowship, University of California, Davis, 2004-2006.
- VIGRE NSF Fellowship, University of California, Davis, 2004.
- Wrangler Award for Outstanding Students in Mathematics, University of Alaska, Anchorage, 2004.

PRESENTATIONS

- “Surface Traction and the Dynamics of Elastic Rods at Low Reynolds Number.” (Contributed Session Talk–*abstract submitted*) SIAM Annual Meeting, Jul. 2013.
- “Mathematical Modeling as a Means of Intentional Development of Intuition.” (Contributed Session Talk) Joint Mathematics Meetings, Jan. 2013.
- “How do Worms Wiggle?” Department of Biology Colloquium, James Madison University, Dec. 2012.
- “An Overview of Modeling Thin Filaments in Fluids.” SIAM Conference on the Life Sciences, Aug. 2012.
- “Snakes and Worms and Germs, Oh My!” , Mathematics Department Colloquium, The United States Naval Academy, Feb. 2012.
- “Slender Bodies in Fluids: Snakes and Worms and Germs, Oh My!” , Department Colloquium, University of Central Oklahoma, Feb. 2012.
- “Snakes and Worms and Germs, Oh My!” , Mathematics Department Colloquium, James Madison University, Feb. 2012.
- “Soft Slender Bodies in Viscous Fluids” Department Colloquium, University of Nebraska-Lincoln, Jan. 2012.
- “Snakes and Worms and Germs, Oh My!” , Mathematics Department Colloquium, Xavier University, Jan. 2012.
- “Were Romeo and Juliet Really Destined to Be? The Dynamics of Love.” Linear Algebra Course, Xavier University, Jan. 2012.
- “The Compatibility of Kirchhoff Rod and Resistive Force Theory” (Poster), Joint Math Meetings, Jan. 2012.
- “The Compatibility of Kirchhoff Rod and Resistive Force Theory” , Center for Computational Science Seminar, Tulane University, Oct. 2011.
- “Velocity Bounds for Soft Filaments in Viscous Flows” , MRSEC Bag-Lunch, University of Chicago, Sept. 2011.
- “Squirring Worms and Twisted DNA” , Special Seminar, University of Alaska Anchorage, May, 2011.
- “The Compatibility of Kirchhoff Rod Theory with Low Reynolds Number Biology” , Invited Speaker and Postdoctoral Workshop Participant at the IPAM WIM Symposium, Feb. 2011.
- “The Compatibility of Kirchhoff Rod Theory with Low Reynolds Number Biology” , *Joint Math Meetings 2011*, New Orleans, LA, Jan. 2011
- “Slender Body Theory and Surface Traction” , Illinois Institute of Technology, Feb. 2010.
- “Slender Body Theory and Applications to DNA” , University of Chicago, Feb. 2010.
- “Elastic Mechanics of DNA” , University of California, Berkeley, Apr. 2009.
- “Dynamics and Mechanics of DNA” (Poster), *Joint Math Meetings 2009*, Washington D.C., Jan. 2009.
- “Inverted Repeat Distributions with Attention to Cruciform Formation” (Poster), *MBI WYRMB 2008*, Columbus, OH, Sept. 2008.
- “Genomic Distribution of Inverted Repeats in *Saccharomyces cerevisiae*” (Poster), *FASEB Summer Research Conference (DNA Palindromes)*, Saxton Rivers, VT, Jul. 2008.
- “Genomic Distribution of Inverted Repeats and Cruciform Extrusion in *Saccharomyces cerevisiae*” , *Genome Center Research Symposium*, Davis, CA, May 2008.
- “A Survey on the Advisor/Advisee Relationship and the Grad ComPost, A Graduate Student Wiki” , *Professors for the Future 2007*, Davis, CA, Jun. 2007.
- “The University of California, Davis Explore Math Program” , *The Mathematical Association of America’s MathFest 2007*, San Jose, CA, Aug. 2007.
- “Report on the Impact of HIV Testing on the Spread of HIV Infection” , 10th *PIMS Industrial Problem Solving Workshop, IRMACS Centre*, Vancouver, BC, June 2006.

MENTORED UNDERGRADUATE RESEARCH OR INDEPENDENT STUDY

- Katie Sipes (Biology and Math Double-Major). Wiggling Organisms Research and Modeling (WORM) Lab (*current student*).
- Jeff Kopsick (Biology Major). 3D Printing for WORM environments (*current student, working in an independent study under L. Taalman*).
- Bailey Steinworth (Biology Major). A Natural History of HPV Infection in MSM Populations (Poster at CAURS 2011 & 2012-with N. Aeppel)
- Yuhui Wang (Chemistry and Biochemistry Major) and Bailey Steinworth. Disease Model Applications of Nonlinear Dynamics Independent Study (Fall 2010).
- Scott Lee (Math and Economics Major). Sensitivity Analysis of a Markov Model of Disease Spread (2011-2012).
- Nick Aeppel (Math and Economics Major). A Dynamical Systems Model of Sexually Transmitted Disease and Pulse Vaccination (Poster at CAURS 2012-with B. Steinworth).

PROFESSIONAL MEMBERSHIPS

- Society for Industrial and Applied Mathematics.
- Golden Key Honor Society.
- Phi Kappa Phi.

ADDITIONAL SYNERGISTIC ACTIVITIES

- Shenandoah Valley STEM Collaborative. Spring 2013.
- Expanding Your Horizons, James Madison University (*Workshop Leader*). Mar. 2013.
- JMM Undergraduate Poster Session (*Poster Judge*). Jan. 2013.
- Shenandoah Undergraduate Mathematics Symposium, James Madison University (*Industry Panelist*). Oct. 2012.
- SIAM LS Minisymposium Co-Organizer. Aug. 2012.
- Peer Reviewer for Biophysical Journal. 2012.
- Chicago Area Undergraduate Research Symposium (CAURS) (*Poster Judge*). Mar. 2012.
- Undergraduate Research Mentor (4 students), University of Chicago. 2010-2012.
- REU Course Instructor-University of Chicago. Jun. 2010, 2011, 2012.
- Explore Math Picnic Day Organizational Committee-UC Davis. Apr. 2008.
- Academics Preparations Program (*Invited Speaker*)-UC Davis. Nov. 2007.
- Graduate Student Week of Welcome (*Invited Panelist*)-UC Davis. Sept. 2007.
- Professors for the Future Program (*Advising Survey Organizer*)-UC Davis. Sept. 2006-Mar. 2007.
- Qualifying Exam Preparation Workshop-UC Davis. Sept. 2006-Mar. 2007.
- GGAM Representative-UC Davis. Apr. 2006-Mar. 2007.
- Sonya Kovalevsky Math Day-UA Anchorage (*Invited Panelist*). Mar. 2004.
- Anchorage School District's Math Day (*Invited Speaker*). Mar. 2004.