

Scott Hottovy
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US Citizen

EMPLOYMENT

2013-Present University of Wisconsin-Madison

- **Position:** Postdoctoral Researcher
- **PI:** Professor Sam Stechmann

EDUCATION

May 2013 PhD in Applied Mathematics from the University of Arizona

- **Dissertation:** *The Smoluchowski-Kramers Approximation with State Dependent Friction: a framework for the small mass limit.*
- **Advisor:** Professor Jan Wehr

2010 MS in Applied Mathematics from the University of Arizona

2008 BS in Mathematics from the University of Nebraska at Lincoln

RESEARCH INTERESTS

- Stochastic differential equations and applications in the atmosphere, biology, and physics.
- Limit theorems of stochastic processes.
- Interacting particle systems, phase transitions, critical phenomena.

PUBLICATIONS

1. Birrell, J., Hottovy, S., Giovanni Volpe, & Wehr, J. (2016+). *Small Mass Limit of Langevin Equation on a Manifold*. **Submitted**. arXiv preprint arxiv:1604.04819
2. Hottovy, S., McDaniel, A., & Wehr, J. (2016+). *A small delay and correlation time limit of stochastic differential delay equations with state-dependent colored noise*. **Submitted**. arXiv preprint arXiv:1510.05065.
3. Herzog, D. P., Hottovy, S., & Volpe, G. (2016). *The Small-Mass Limit for Langevin Dynamics with Unbounded Coefficients and positive friction*. **Journal of Statistical Physics**, 163(3), 659-673.
4. Hottovy, S. & Stechmann, S.N. (2015). *A spatiotemporal stochastic model for tropical precipitation and water vapor dynamics*, **Journal of the Atmospheric Sciences**, 72(12), pp.4721-4738.
5. Hottovy, S., & Stechmann, S.N. (2015). *Threshold models for rainfall and convection: deterministic versus stochastic triggers*. **SIAM Journal on Applied Mathematics**, 75(2), 861-884.
6. Hottovy, S., McDaniel, A., Volpe, G., & Wehr, J. (2014). *The Smoluchowski-Kramers limit of stochastic differential equations with arbitrary state-dependent friction*. **Communications in Mathematical Physics**, 336(3), 1259-1283.
7. Pesce, G., McDaniel, A., Hottovy, S., Wehr, J., & Volpe, G. (2013). *Stratonovich-to-Itô transition in noisy systems with multiplicative feedback*. **Nature communications** 4, 2733.
8. Hottovy, S. (2013). *The Smoluchowski-Kramers approximation for stochastic differential equations with arbitrary state dependent friction* (Doctoral dissertation, The University of Arizona).
9. Hottovy, S., Volpe, G., & Wehr, J. (2012). *Thermophoresis of Brownian Particles Driven by Coloured Noise*. **EPL (European Physics Letters)**, 99(6), 60002.
10. Hottovy, S., Volpe, G., & Wehr, J. (2012). *Noise-Induced Drift in Stochastic Differential Equations with Arbitrary Friction and Diffusion in the Smoluchowski-Kramers Limit*. **Journal of Statistical Physics**, 146(4), 762-773.

11. Avalos, G., Gunderson, M., & Hottovy, S. (2009). *Computation of Minimal Norm Control Asymptotics Relative to the Null Controllability of Non-Standard Parabolic-Like Dynamics*. **Nonlinear Analysis: Theory, Methods & Applications**, 71(12), e2674-e2689.

MENTORING UNDERGRADUATE RESEARCH

- Mentored three separate groups of undergraduate research through MATH 485-Mathematical Modeling (University of Arizona, Spring 2010, 2011, 2012).
- **Papers**
 - Chernobelskiy A., Dixit, V., Cala, A., Pandya, S. & Rosas, H.J. , Sponsor: Hottovy, S. (2013). *Modeling Learning and Cooperation in Iterative Games*. **SIAM Undergraduate Research Online (SIURO)**, 6, 42-53.

TEACHING EXPERIENCE

- **Courses as a Primary Instructor**
 - * Math 276: Topics in Calculus II (Honors), Spring 2015, University of Wisconsin.
 - * Math 431: Introduction to Probability, Spring 2014, University of Wisconsin.
 - * Math 124: Calculus I, Fall 2011, University of Arizona.
 - * Math 109C: College Algebra with Data Analysis, Spring 2010, University of Arizona.
 - * Math 112: College Algebra, Fall 2010, University of Arizona.
- **Other Teaching Experiences**
 - * GTEAMS Fellow University of Arizona (Fall 2012-Spring 2013)
 - Led discussions and projects at St. Micheal's Parish Day School (Grades 6-8) in Tucson, AZ.
 - At least 10 hours per week of classroom experience.
 - Use of technology including Smart Board and integration of IPADs in the school at 1:1 ratio.
 - Served as a resource for the science and mathematics students and the Instructor: Jennifer Gould.
 - * **Graduate Teaching Assistant University of Arizona**, Applied Methods Course (Fall 2010-Spring 2011)
 - Led review sessions for Applied Mathematics graduate student first year core course.
 - Lectured two classes.
 - * **Teaching Assistant University of Nebraska** (Spring 2007, Fall 2007, Spring 2008).
 - Calculus I, II (discussion leader).
 - Participated in the Mathematics Resource Center

FUNDING SECURED

- Fellowships and Travel Grants
 - 2015** NSF Travel Grant Award to ICMP 2016.
 - 2013** SPA Travel Award.
 - 2013** AMS Travel Award.
 - 2012-2013** University of Arizona G-TEAMS Fellowship (NSF GK-12).
 - 2012** NSF Travel Grant Award to ICMP 2012.
 - 2012** University of Arizona HE Carter Travel Grant Award.
 - 2010-2011** University of Arizona NSF VIGRE Fellowship.
 - 2008-2009** University of Arizona Fellowship.
 - 2006-2008** University of Nebraska MCTP Undergraduate Scholar.
- Awards
 - 2012** University of Arizona College of Science Galileo Scholar.
 - 2008** University of Nebraska Chair's Prize in Mathematics.

PRESENTATIONS

– Invited Speaker

- * University of Central Florida, Math Colloquium (Orlando, FL, USA February 2016)
- * United States Naval Academy, Math Colloquium (Annapolis, MD, USA February 2016)
- * Montana State University, Math Colloquium (Bozeman, MT, USA January 2016)
- * Iowa State University, Probability Seminar (Ames, IA, USA September 2015)
- * *Turbulent and Coherent Convection* (Madison, WI, USA May 2015)
- * Université de Genève, Theoretical Physics seminar (Geneva, Switzerland, September 2012)
- * *Frontiers in Nonlinear Waves* (Tucson, AZ, USA October 2011)

– Presentations at Conferences and Meetings

- * *American Meteorological Society Conference on Hurricanes and Tropical Meteorology* (San Juan, PR, April 2016)
- * *Joint Mathematics Meetings* (Seattle, WA, January 2016)
- * *Young Research Symposium at ICMP* (Santiago, Chile, July 2015)
- * *Probability Theory and Combinatorial Optimization* (Durham, NC, USA, March 2015)
- * *AGU Fall Meeting* (San Francisco, CA, USA, December 2014)
- * *Frontier Probability Days* (Tucson, AZ, USA, May 2014)
- * *AMS 31st Conference on Hurricanes and Tropical Meteorology [poster]* (San Diego, CA, USA, April 2014)
- * *Conference of Stochastic Processes and Applications* (Boulder, CO, USA, July 2013)
- * *Joint Mathematics Meetings* (San Diego, CA, USA, January 2013)
- * *International Congress on Mathematical Physics* (Aalborg, Denmark, August 2012)
- * *Young Research Symposium at ICMP* (Aalborg, Denmark, August 2012)
- * *Statistical Mechanics* (Rutgers, NJ, USA, May 2012)
- * *APS sectional meeting [poster]* (Tucson, AZ, USA, October 2011)
- * *National Alliance Field of Dreams [poster]* (Phoenix, AZ, USA, October 2011)
- * *Arizona Days* (Tucson, AZ, USA, April 2011)
- * *Regional Workshop in Mathematics* (Lincoln, NE, USA, October 2006)

– Seminars

- * University of Wisconsin, USA, Probability seminar (April 2015)
- * University of Wisconsin, USA, Applied and Computation Mathematics seminar (February 2014)
- * University of Wisconsin, USA, Probability Reading seminar (February 2014)
- * University of Wisconsin, USA, Probability seminar (December 2013)
- * University of Arizona, USA, Mathematical Physics seminar (November 2012)
- * University of Arizona, USA, Analysis seminar (October 2012)
- * University of Arizona, USA, Mathematical Physics seminar (April 2012)
- * University of Arizona, USA, Analysis seminar (March 2012)
- * University of Arizona, USA, Mathematical Physics seminar (April 2011)

– Workshop participation

- * *Disordered Models in Mathematical Physics* (Valparaiso, Chile, July 2015)
- * *Midwest Probability Colloquium* (Evanston, IL, USA, October 2014)
- * *Frontier in Probability Days* (Tucson, AZ, USA, October 2013)
- * *Midwest Probability Colloquium* (Evanston, IL, USA, October 2013)
- * *Random Dynamical Systems* (Institute of Mathematics and its Applications, MN, USA, October 2012)
- * *Arizona School of Analysis and Mathematical Physics* (Tucson, AZ, USA, March 2012)
- * *Institute of Mathematical Education* (Tucson, AZ, USA, March 2012)

SERVICE

– University Service

- 2015** Teaching Circle Speaker
- 2014** Math Circle Speaker

2012 Volunteer for Arizona Math Counts Competitions.
2010-2011 University of Arizona Applied Mathematics Graduate Representative.
2009-2011 University of Arizona SIAM Student Chapter Vice President.
2005-2007 University of Nebraska Math Day Volunteer.

– **Reviewer for Journals:**

* Euro Physics Letters, Physica A, Statistics and Probability Letters

– **Membership to Professional Organizations:**

* SIAM Society for Industrial and Applied Mathematics

* AMS American Meteorological Society

ADDITIONAL INFORMATION

– *Additional Courses Outside Specialty:* Numerical Partial Differential Equations, Quantum Mechanics, Quantum Information and Computing.