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US Citizen

## EMPLOYMENT

**2016-Present United States Naval Academy**, Department of Mathematics

- **Position:** Assistant Professor

**2013-2016 University of Wisconsin-Madison**, Department of Mathematics

- **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.