

## Robert Edward Lee DeVille

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**Born:** New Orleans, Louisiana, U.S.A.

**Citizenship:** U.S.A.

### EDUCATION & APPOINTMENTS:

- 2007–present Assistant Professor, University of Illinois at Urbana-Champaign
- 2005–2007 Courant Instructor, Courant Institute, New York University
- 2004–2005 Research Scientist, Courant Institute, New York University
- 2001–2004 VIGRE postdoc, Rensselaer Polytechnic Institute
- 2001 Ph. D., M. A., Boston University, Department of Mathematics  
Advisor: C. Eugene Wayne  
Dissertation: “Reduced Equations for Hyperbolic Problems on Thin Domains”
- 1996 B.S., Tulane University

### REFEREED PUBLICATIONS:

(preprints and publications available at <http://www.math.uiuc.edu/~rdeville/>)

1. Regular gaits and optimal velocities for motor proteins. Submitted, *Biophysical Journal*, January 2008. (with Eric Vanden-Eijnden)
2. Synchrony and asynchrony in a fully stochastic neural network. To appear, *Bulletin of Mathematical Biology*, accepted February 2008. (with Charles S. Peskin)
3. Regularity and synchrony in motor proteins. *Bulletin of Mathematical Biology*, 70 (2):484–516, 2008. (with Eric Vanden-Eijnden)
4. Analysis of a Renormalization Group Method for solving perturbed Ordinary Differential Equations, *Physica D*, (2008), doi:10.1016/j.physd.2007.12.009. (with Anthony Harkin, Matt Holzer, Krešimir Josić, and Tasso Kaper)
5. Self-induced stochastic resonance for Brownian ratchets under load. *Communications in Mathematical Sciences*, 5 (2): 431–446 2007. (with Eric Vanden-Eijnden)
6. Wavetrain response of an excitable medium to local stochastic forcing. *Nonlinearity*, 20 (2007), 51–74. (with E. Vanden-Eijnden)
7. Nontrivial scaling limits for multiscale Markov chains. *Journal of Statistical Physics*, Journal of Statistical Physics, 126 (1): 75–94, Jan 2007. (with E. Vanden-Eijnden)
8. Non-meanfield deterministic limits in chemical reaction kinetics. *Journal of Chemical Physics*, **124** (23): Article 231102, June 21, 2006. (with C. Muratov and E. Vanden-Eijnden)
9. Non-equilibrium statistics of a reduced model for energy transfer in waves. *Communications on Pure and Applied Mathematics*, 60 (2007), no. 3, 439–461. (with P. Milewski, R. Pignol, E. Tabak, and E. Vanden-Eijnden)

10. Two distinct mechanisms of coherence in randomly perturbed dynamical systems. *Physical Review E*, **72** (3), Article 031105, September 2005. (with C. Muratov and E. Vanden-Eijnden)
11. Reduced Equations for Hyperbolic Problems on Thin Domains. I. *Asymptotic Analysis*, **42** (2005) vol. 3–4, 263–309. (with C. Eugene Wayne)
12. Reduced Equations for Hyperbolic Problems on Thin Domains. II. *Asymptotic Analysis*, **42** (2005) vol. 3–4, 311–346.
13. Brjuno Numbers and the Symbolic Dynamics of the Complex Exponential. *Qualitative Theory of Differential Equations*, **5** (2004), no. 1, 63–74.
14. Accessible Points in the Julia Sets of Stable Exponentials. *Discrete and Continuous Dynamical Systems*, **1** (2001), no. 3, 299–318. (with R. Bhattacharjee, R. Devaney, K. Josić, M. Moreno-Rocha)
15. Itineraries of Entire Functions. *Journal of Difference Equations and Applications*, **7** (2001), no. 2, 193–214.

**non-refereed publications:**

16. Reduced Equations for Hyperbolic Problems on Thin Domains. Ph.D. Thesis, Boston University, 2001.

**INVITED LECTURES:**

1. February 2008 – Dynamical Systems Seminar, Boston University.
2. December 2007 – Workshop on “Random Dynamical Systems”, University of Bielefeld, Germany.
3. April 2007 – Analysis Seminar, University of Pennsylvania.
4. February 2007 – Mathematics Colloquium, Ohio State.
5. January 2007 – Mathematics Colloquium, University of Georgia.
6. December 2006 – Applied Math Seminar, Courant Institute.
7. November 2006 – Mathematical Biology Seminar, Courant Institute.
8. October 2006 – Applied Math and Stochastic Analysis Seminar, University of Illinois.
9. September 2006 – Courant Instructor Day, Courant Institute.
10. July 2006 – SIAM meeting on Analysis of PDE, Boston, MA.
11. April 2006 – PACM Colloquium, Princeton University.
12. April 2006 – Mathematical Biology Seminar, University of California, Davis.
13. February 2006 – Colloquium, Michigan State University.
14. February 2006 – Mathematical Biology Seminar, Courant Institute.
15. December 2005 – Mathematical Sciences Colloquium, Rensselaer Polytechnic Institute.
16. November 2005 – Mathematical Biology Seminar, New Jersey Institute of Technology.
17. May 2005 – mini-symposium on “Synchrony in neuroscience”,  
SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah.
18. May 2005 – mini-symposium on “Extended stochastic dynamical systems”  
SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah.

19. February 2004 – Applied Mathematics and Numerical Analysis Seminar, University of Minnesota.
20. October 2003 – Analysis Seminar, Courant Institute.
21. July 2003 – mini-symposium on “Neuronal and biological dynamical systems”  
5th International Congress on Industrial and Applied Mathematics, Sydney, NSW, Australia.
22. May 2003 – minisymposium on “Renormalization group methods”  
SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah.
23. March 2003 – Math Colloquium, Siena College. (talk for undergraduates)
24. February 2003 – Mathematics Colloquium, Brown University.
25. February 2003 – Applied Mathematics Colloquium, Rensselaer Polytechnic Institute.
26. November 2002 – Mathematics Colloquium, University of Virginia.
27. October 2002 – Mathematical Physics Seminar, University of Texas at Austin.
28. October 2002 – PDE Seminar, University of Houston.
29. May 2002 – minisymposium on “Invariant Manifolds”  
Conference on Dynamical Systems and Differential Equations, UNC – Wilmington.
30. May 2002 – Applied Math and Analysis Workshop, Brown University.
31. March 2002 – Mathematics Colloquium, Dartmouth College.
32. October 2001 – four lecture series - Nonlinear Dynamics Seminar, Rensselaer Polytechnic Institute.
33. April 2001 – Boston University Dynamical Systems Seminar, Boston University.
34. January 2001 – AMS National Meeting, New Orleans.
35. March 2000 – Midwest Dynamical Systems Conference, University of Florida.
36. May 1999 – Workshop on Hamiltonian Mechanics and Small Divisors in PDEs, International Centre for Mathematical Sciences, Edinburgh, Scotland.
37. May 1999 – Boston University Dynamical Systems Seminar, Boston University.

#### **TEACHING HISTORY:**

- **University of Illinois.** Currently teaching one course per semester. Classes have included undergraduate Fundamental Mathematics and graduate Applied Math.
- **Courant Institute.** Taught one class per semester for four semesters. Classes included Calculus I, graduate Applied Math 2, graduate Linear Algebra, and undergraduate Applied Math.
- **Rensselaer Polytechnic Institute.** Taught one class per semester for six semesters, teaching twice at each of the 200-level, 400-level, and graduate-level courses. (200-level Differential Equations and Discrete Math, 400-level Linear Algebra and Differential Equations, 600-level Dynamical Systems twice)
- **Boston University,** summer instructor. Linear Algebra (twice), Complex Analysis.
- **Boston University,** teaching assistant. Calculus I, II, III, Differential Equations.

- **Boston University Differential Equations Project.** Worked as copy-editor and assisted with layout of *Differential Equations* by Blanchard, Devaney, and Hall. Contributed and edited solutions to exercises. Designed and created pictures using Mathematica. Taught the Differential Equations class as teaching assistant with both Blanchard and Devaney.
- **Tulane University,** teaching assistant. Calculus I, II, and III.

**OTHER ACTIVITIES:**

1. organized a minisymposium entitled “Asymptotic Problems and Methods for Stochastic Partial Differential Equations”, SIAM meeting on analysis of PDE, Boston, Massachusetts, July 2006.
2. organized a two-part minisymposium entitled “Recent Results on the Fermi-Pasta-Ulam Problem”, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2003.
3. Organizer of Complex Systems seminar at RPI, Spring 2002 – Fall 2003, invited speakers, both from RPI and elsewhere, for multi-session presentations on research
4. Co-organizer of Graduate Student Research Seminar at RPI, Spring 2003, organized faculty talks on their research at a general mathematical level for beginning graduate students
5. Co-organizer of Graduate Student Teaching Seminar at RPI, Fall 2001, ran discussions with incoming graduate students on teaching issues
6. Organizer of Graduate Student Colloquium at BU, Fall 1999 – Spring 2000, organized graduate student talks by advanced graduate students for beginning graduate students, typically on their dissertation research