

# Ilya Timofeyev

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## Professional Preparation

- Ph.D., Rensselaer Polytechnic Institute, Mathematics, August 1998  
Advisors: G. Kovačič and V. Roytburd
- B.S., Rensselaer Polytechnic Institute, Mathematics, May 1994
- St. Petersburg Technical Marine University, St. Petersburg, Russia, Fall 1988 – Fall 1991,  
Major: Mathematics, Minor: Computer Science

## Appointments

- *Assistant Professor*, Department of Mathematics, University of Houston, Houston, TX  
(Fall 2002 - Present)
- *Postdoctoral Fellow*, Courant Institute, New York, NY (Fall 1998 - Spring 2002)  
Advisor: A. J. Majda

## Research Interests

Stochastic Differential Equations and Scientific Computing with applications in Geophysical Fluid Dynamics, Statistical and Stochastic Modeling of the Low-Frequency Variability of the Atmosphere, Statistical Physics, Information Theory, Dynamical Systems

## Selected Publications

- A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "Stochastic Models for Selected Slow Variables in Large Deterministic Systems", *Nonlinearity*, **19** (2006), 769-794
- A. J. Majda, and I. Timofeyev, "Low Dimensional Chaotic Dynamics Versus Intrinsic Stochastic Noise: A Paradigm Model", *Physica D*, **199** (2004), 339-368
- A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "Systematic Strategies for Stochastic Mode Reduction in Climate", *J. Atmos. Sci.*, **60(14)** (2003), 1705-1722
- A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "A priori Tests of a Stochastic Mode Reduction Strategy", *Physica D*, **170** (2002), 206-252

- R. Kleeman, A. J. Majda, and I. Timofeyev, “Quantifying predictability in a model with statistical features of the atmosphere”, *Proc. Natl. Acad. Sci. USA*, **99(24)** (2002), 15291–15296
- A. J. Majda, and I. Timofeyev, “Statistical mechanics for truncations of the Burgers-Hopf equation: A model for intrinsic stochastic behavior with scaling”, *Milan Journal of Mathematics*, **70(1)** (2002), 39–96
- A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, “A Mathematics Framework for Stochastic Climate Models”, *Comm. Pure Appl. Math.*, **54(8)** (2001), 891–974

### Selected Presentations

- *Stochastic Mode-Reduction in Large Deterministic Systems*, Invited Presentation, The Institute for Mathematics Applied to Geosciences Theme of the Year Workshop III “Stochastic and Statistical Parameterization of Unresolved Features in the Atmosphere and Upper Ocean”, Boulder, CO, February 27 - March 3, 2006
- *Stochastic mode-reduction for a class of energy conserving systems*, Invited Presentation, Workshop on Parameter Estimation in Continuous Time Models, Edinburgh, UK, December 5-9, 2005
- *Reduced Dynamics for a Class of Conservative Systems*, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 22-26, 2005
- *Low Dimensional Chaotic Dynamics Versus Intrinsic Stochastic Noise*, Invited Presentation, Workshop “Representing Unresolved degrees of Freedom for the Atmosphere and Ocean,” Montreal, March 2-5, 2005
- *Equilibrium Statistical Mechanics for Spectral Truncations of Conservative PDEs*, Minisymposium Speaker, SIAM Conference on Nonlinear Waves and Coherent Structures, Orlando, FL, 2004

### Professional Activities

- Co-organizer of the minisymposium *Low-dimensional Structures, Reduced Description and Stochastic Processes in Atmosphere/ocean Dynamics*, 5th International Conference on Dynamical Systems and Differential Equations, Pomona, CA, 2004
- Co-organizer of the minisymposium *Stochastic Modeling and Statistical Description of Spatially Extended Nonlinear Dynamics*, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT 2003
- Referee for Physical Review Letters, Journal of Computational Physics, Multiscale Modeling and Simulations, Journal of the Atmospheric Sciences