Melissa Vellela
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Research Interests and Goals

My research interests are in the dynamics of deterministic and stochastic differential equations which model biological systems. My goal is to obtain a long-term research position in Seattle, working on the formation and analysis of models relating to biology and/or health.

Education

- Ph.D. Candidate, Spring 2007
- M.S., Applied Mathematics, University of Washington, 2007
- B.A., Pure and Applied Mathematics, Boston University, 2003

Teaching Experience

- Lecturer for Amath 351 (Differential Equations), Fall 2007 and Summer 2005, and Amath 301 (Scientific Computing with MATLAB), Summer 2007
- Organizer of the Undergraduate Mathematical Sciences Seminar, Winter 2006-Spring 2007
- Teaching Assistant, Math 111 and 112 (Business Calculus) and 125 (Integral Calculus), October 2004-Fall 2005

Research Experience

- VIGRE Research Fellow, focusing on mathematical models of chemical kinetics, Adviser: Hong Qian, Fall 2005-Spring 2007
- Research Experience for Undergraduates program, Summer 2002 at Rose-Hulman Institute of Technology, Adviser: Kurt Bryan

Computing Abilities

- Familiar with Microsoft, Apple and Linux platforms
- Proficient in Matlab, Maple and Mathematica, and Turbo PASCAL

Service and Leadership Qualities

- Volunteer at SIAM Conference on Nonlinear Waves and Coherent Structures, held at Univ. of Washington, September 2006
- Graduate Student Representative for the Dept. of Applied Math, Fall 2005-Summer 2006

- President of the Undergraduate Math Association, Boston University, Fall 2001-Spring 2003

Awards

- NSF VIGRE Fellow, Fall 2005-Spring 2007
- Boeing Award for Excellence in Teaching, Research and Service, 2006
- Robert A. Brown Prize in Mathematics, Boston University 2003
- Harold C. Case Scholarship, Boston University, 2002

Published Papers

- "A quasistationary analysis of a stochastic chemical reaction: Keizer's paradox revisited", with Hong Qian, *Bulletin Of Mathematical Biology* **69**, 1727-1746 (2007)
- "Reconstruction of Crack with Unknown Transmission Condition from Boundary Data", with Kurt Bryan and Ron Ogborne, *Inverse Problems* **21**, 21-36 (2005)

Conference Talks and Poster Contributions

- "A quasistationary analysis of a stochastic chemical reaction: Keizer's paradox revisited", poster, to be presented at the upcoming conferences:
  - ICAM Workshop on Multiscale Interactions and Dynamics in Biological Systems, Washington University, St. Louis, MO, May 2006
  - SIAM Conference on Analysis of Partial Differential Equations (held jointly with SIAM Annual Meeting), Boston, MA, July 2006
- "Stochastic Modeling of Chemical Reactions", talk, 2006 Applied Mathematics Graduate Student Conference, Simon Fraser University, January 2006
- "Reconstruction of Crack with Unknown Transmission Condition from Boundary Data" (or, "Dude, Where's My Crack?"), talk, Undergraduate Research Conference, Indiana University, 2002
- "A Straightforward Solution to an Inverse Problem", talk, RUMBUS (Undergraduate Research Symposium), Boston University, 2003