Andrea Blazenko

Contact Information

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Research Interests

Geophysical Fluid Dynamics, Numerical Analysis of PDEs, Dynamical Systems

Education

Simon Fraser University

- M.S. Applied and Computational Mathematics (starting Sept 2007)
- B.S. Applied Mathematics (Sept 2002-August 2007)

Relevant Work Experience

Research Assistant- Dr. David Muraki, SFU Mathematics — April 2007 - present

- Investigating Potential Vorticity for Rotating Shallow Water Equations on the sphere

Research Assistant - Dr. George Blazenko, SFU Business Administration — Summer 2006

- Established proofs for mathematical relations used in finance
- Results to be published in *Investment Timing for New Business Ventures* , Dr. George Blazenko, Dr. Andrey Pavlov

Projects

Simon Fraser University

Pattern Formation in Taylor Couette Flow- poster — Fall 2006

- Investigation of the hydrodynamic instabilities involved in rotating flow
- Implementation of spectral code in Matlab to solve non constant coefficient eigenvalue problem

Finite Volume Methods — Fall 2006

- Analysis of Finite Volume methods and their applications for solving nonlinear scalar hyperbolic PDE's

Brownian Motion — Fall 2005

- Analysis of relationship between Brownian Motion and the solution to Laplace's equation

Delay Differential Equations - poster — Fall 2005

- Construction of a biological model and a brief look into solutions of simple delay differential equations
- Design and implementation of a Runge Kutta code demonstrating the nonlinear dynamics associated with the model

Awards

NSERC Undergraduate Student Research Award — 2007

Computing Experience

Languages: Matlab, Maple, LaTeX, Java

Operating Systems: Unix/Linux, Mac, Windows

Numerical Schemes: finite differences, finite element methods, pseudo-spectral methods, exponential time-differencing fourth-order Runge-Kutta method, adaptive time stepping