

Andrew N. Rhines

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Education

Diploma, Lakeside School, Seattle, WA (*May 2003*)

B.A. Physics, Reed College (*May 2007*) – Thesis: *A Realistic Model of Elastic Vibrations*

Ph.D student in Applied Math, Harvard University, (*September 2008 –*)

Research Experience & Employment

Research Assistant 07/2008 –
Eli Tziperman and Peter Huybers *Harvard University*
Applied mathematics Ph.D student, working in the field of climate dynamics. Research interests in several areas: Optimal timescale adjustment of time-uncertain data, atmospheric wavetrains due to changes in orography during glacial-interglacial periods, and improving parameterizations of air-sea interactions (e.g. turbulent heat fluxes in the boundary layer with partial sea ice cover).

Physicist 08/2007 – 06/2008
Venture Ad Astra, LLC *Portland*
Algorithm and hardware design prototyping of a timing and navigation system for the Air Force Research Lab.

Research Associate Summer 2007
Department of Physics *Reed College*
Researched the nonlinear dynamics of viscoelastic continuum mechanics. Developed numerical models, and compared results with an experiment utilizing a novel optical vibrometer. Provided technical review and comments for a forthcoming textbook on general relativity.

REU Student Summer 2006
Institute for Research in Electronics and Applied Physics *University of Maryland*
Created an anechoic chamber with a foam extrusion throughflow, and computational analysis routines for the study of nonlinear dynamics of sheared foam. Identified power-law scaling in avalanche dynamics by using spectral methods for event detection. Won program research award.

Lab Assistant 09/2005 – 05/2006
Department of Physics *Reed College*
Assisted in laboratory instruction of sophomore level electronics and fundamental constants labs. Updated manuals, and provided technical assistance for lab apparatus, data analysis, and typesetting.

Undergraduate Research Intern Summers 2004, 2005
Microscale Genomation Lab *University of Washington*
Microfluidics research – created functional valve arrays using soft-lithography fabrication procedures. Developed new fabrication techniques by hot-embossing thermoplastics to create a passive chaotic advection micromixer. Prototyped a toolkit to build hybrid electromechanical/microfluidic devices.

Programming Intern Summer 2001
Applied Physics Lab *University of Washington*

Development of radar data processing routines in MATLAB.

Selected Presentations

“Spectral Impacts of Time Uncertainty in the Paleoclimate,” AOS Days, NYU, May 18, 2009.

“A Realistic Model of Elastic Vibration,” Presentation to the Reed College Board of Trustees, April 23, 2007.

“Asymptotic Solutions to the Nonlinear Viscoelastic String,” Reed College Physics Colloquium, April 9, 2007.

“Nonlinear Processes in Foam Dynamics,” Reed College Physics Colloquium, October, 2006.

“Avalanches in Foam Collapse,” University of Maryland TREND Fair, August 11, 2006.

“Microfluidic Device Fabrication,” Reed College Physics Colloquium, October, 2005.

“A Scalable Peristaltic PDMS Micropump,” Microscale Genomation Lab Tech Talk, August, 2005.

Misc. Conferences and Workshops Attended

Atmosphere and Ocean Science Days, NYU, May 18-19, 2009.

Fundamental Problems in Climate Dynamics, Princeton Center for Theoretical Science, May 4-13, 2009.

Rapid Ice Sheet Destabilization: Past Present and Future, Harvard, April 3-4, 2009.

Reducing the Uncertainty in the Prediction of Global Warming, Hebrew University Institute for Advanced Studies, Jerusalem, January 12-16, 2009.

Snowball Earth Workshop (Ray Pierrehumbert), Harvard, October 7-8, 2008.

Institute of Navigation NTM, January 28-30, 2008.

Honors and Awards

National Science Foundation Graduate Research Fellowship, 2009–.

Phi Beta Kappa, Reed College, 2007.

TREND Program Research Award, University of Maryland, 2006.

Commendations for Academic Excellence, Reed College, 2005, 2006, 2007.