Daniel Carmody

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Education

PhD (In Progress), Physics, University of Wisconsin - Madison, (September 2009 - current).

Investigating the characteristics of microinstabilities and the nature of turbulence and transport in fusion plasmas, with attention to the reversed field pinch device. A mixture of analytic and computational methods are used, the latter of which involve massively parallel simulations on advanced HPC systems. Thesis Advisor: Paul Terry.

Master of Advanced Study (Part III of the Mathematical Tripos), Department of Applied Mathematics and Theoretical Physics, University of Cambridge, 2009.

Thesis: 'Constraining Cosmological Inflation'. Thesis Advisor: Paul Shellard.

Bachelor of Science, Physics, Carnegie Mellon University, 2008.

Experience

Research Assistant, Theoretical Plasma Physics, University of Wisconsin, 2010-present.

Teaching Assistant, Introductory Physics, University of Wisconsin, 2009-2010

Physics Tutor, Carnegie Mellon University, 2006-2008.

Research Experience for Undergraduates, Cornell University, Summer 2007

Modeled electron cloud physics in the Cornell Electron Storage Ring (CESR) with the ECLOUD program. This work was completed to help provide part of the basis for a proposed conversion of CESR to operation as a test accelerator.

Research Experience for Undergraduates, University of Minnesota, Summer 2006

Used seismic data and inverse modeling to map the structure and composition of the earth's mantle beneath the South American continent.

Intern, Science Applications International Corporation, Summer 2004

Updated a GUI in Microsoft's Visual Studio.

Honors, Awards, and Fellowships

Cambridge Overseas Trust Scholar, 2008

Phi Kappa Phi Honor Society, 2008

Phi Beta Kappa Honor Society, 2008

Publications

Journal Articles

D. Carmody, M. J. Pueschel, P. W. Terry, *Microturbulence Studies of Pulsed Poloidal Current Drive Discharges in the Reversed Field Pinch*, **submitted to Phys. Plasmas**

D. Carmody, P. W. Terry, M. J. Pueschel, *Gyrokinetic Studies of Microinstabilities in the Reversed Field Pinch*, Phys. Plasmas **20**, 052110 (2013)

P. W. Terry, M. J. Pueschel, **D. Carmody**, W. M. Nevins, *The Effect of Magnetic Flutter on Residual Flow*, Phys. Plasmas **20**, 112502 (2013)

Abstracts and Poster Presentations

Talk, *Microinstability Driven Turbulence in the Madison Symmetric Torus* , US Transport Task Force Workshop, San Antonio, TX - April 2014

Poster, *Gyrokinetic Characterization of PPCD Plasmas*, APS Division of Plasma Physics Annual Meeting, Denver, CO - November 2013

Poster, *Gyrokinetic Microinstability and Turbulence Studies in the RFP*, IEA-RFP Workshop, Padova, Italy - September 2013

Invited Talk, *Gyrokinetic simulations in the RFP*, US Transport Task Force Workshop, Santa Rosa, CA - April 2013

Poster, *Microtearing Mode Fluctuations in Reversed Field Pinch Plasmas*, International Atomic Energy Agency Fusion Energy Conference, San Diego, CA - October 2012

Poster, *Microtearing Simulations in the Madison Symmetric Torus*, APS Division of Plasma Physics Annual Meeting, Providence, RI - October 2012

Poster, *Gyrokinetic modeling of microinstabilities in the reversed field pinch*, US Transport Task Force Workshop, Annapolis, MD - April 2012

Poster, *Gyrokinetic Studies of Microtearing Modes in the Reversed Field Pinch*, APS Division of Plasma Physics Annual Meeting, Salt Lake City, UT - November 2011, Abstract GP9.00038

Talk, *Gyrokinetic Simulations and Microinstabilities in the RFP*, IEA-RFP Workshop, Madison, Wisconsin - October 2011

Poster, *Evidence of a mid-mantle discontinuity beneath South America*, American Geophysical Union - Fall Meeting, San Francisco - 2006, abstract S53A-1303

Outreach

Talk, *Plasmas of the Universe*, Madison East High School Math Week, Madison, WI - May 2014