

**DR. ALISON J. FARMER**

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- USA -	Nationality: British
www.cfa.harvard.edu/~afarmer	Date of birth: January 6, 1979

**EDUCATION AND CAREER**

Institute for Theory and Computation Fellow, HARVARD COLLEGE OBSERVATORY	2008–2010
Junior Fellow, HARVARD SOCIETY OF FELLOWS	2005 – 2008
Society Chocolate Steward 2006 –2007; Spirits Steward 2007-2008	
Visitor at the INSTITUTE FOR ADVANCED STUDY, Princeton	2004 – 2005
PhD in Astrophysics, CALIFORNIA INSTITUTE OF TECHNOLOGY	2000 – 2005
Thesis: “Adventures in Theoretical Astrophysics”	
Advisor: Professor Peter Goldreich	
BA and MSci in Natural Sciences, PEMBROKE COLLEGE, UNIVERSITY OF CAMBRIDGE	1996 – 2000
Tripas Parts IA, IB, II and III: First Class Honours	
Specialization: Experimental and Theoretical Physics	

**AWARDS AND HONORS**

Robert Benjamin Leighton Fellowship, Caltech	2000 – 2004
BAE Systems / Sir Nevill Mott Prize for Physics, University of Cambridge	2000
Kilby Prize for best undergraduate performance, Pembroke College	2000
Hartree & Clerk Maxwell Prizes for Physics, University of Cambridge	1999
Dr. Stevens’ Prize for Natural Sciences, Pembroke College	1999
Pembroke College Foundation Scholarship	1998 – 2000
Foundress’ Prize, Pembroke College	1998
Pembroke College Scholarship	1997 – 1998
Satish Kumar Agarwal Prize for Natural Sciences, Pembroke College	1997
Pembroke College Prize	1997
Nuffield Science Bursary, Royal Observatory, Edinburgh	1995

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**RESEARCH INTERESTS**

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Solving astrophysical mysteries and understanding physical processes through the application of physics, with emphasis on becoming a general-purpose astrophysical theorist. Currently, planetary electrodynamics is of particular interest to me.

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**TEACHING EXPERIENCE**

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Teaching Assistant, Introductory Astronomy, Caltech	2002
Teaching Assistant, Galaxies and Cosmology, Caltech	2002
Teaching Assistant, Basic Astronomy and the Galaxy, Caltech	2001

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**PUBLICATIONS**

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- **A. J. Farmer**, “Saturn in Hot Water: Viscous Evolution of the Enceladus Torus”, submitted 06/2008
- J. Nichols, J. T. Clarke, S. W. H. Cowley, J. Duval, **A. J. Farmer**, J.-C. Gerard, D. Grodent, S. Wannawichian, “The rotation of Saturn’s southern auroral oval”, submitted 12/2007
- P. Goldreich, **A. J. Farmer**, “Spontaneous Axisymmetry Breaking of the External Magnetic Field at Saturn”, JGR (2007) 112, A05225
- **A. J. Farmer**, P. Goldreich, “How much oxygen is too much? Constraining Saturn’s Ring Atmosphere”, Icarus (2007) 188, 108
- R. Narayan, J. C. McKinney, **A. J. Farmer**, “Self-Similar Force-Free Wind from an Accretion Disk”, MNRAS (2007) 375, 548
- **A. J. Farmer**, P. Goldreich, “Understanding the Behavior of Prometheus and Pandora”, Icarus (2006) 180, 403
- **A. J. Farmer**, P. Goldreich, “Spoke Formation under Moving Plasma Clouds”, Icarus (2005) 179, 535
- **A. J. Farmer**, P. Goldreich, “Wave Damping by Magnetohydrodynamic Turbulence and Its Effect on Cosmic-Ray Propagation in the Interstellar Medium”, Astrophysical Journal (2004) 604, 671
- A. Cooray, **A. J. Farmer**, N. Seto “The Optical Identification of Close White Dwarf Binaries in the Laser Interferometer Space Antenna Era”, Astrophysical Journal Letters (2004) 601, 47
- **A. J. Farmer**, E. S. Phinney, “The gravitational wave background from cosmological compact binaries”, Monthly Notices of the Royal Astronomical Society (2003) 346, 1197
- **A. J. Farmer**, E. Agol, “Finding White Dwarfs with Transit Searches”, Astrophysical Journal (2003) 592, 1151
- T. J. Pearson, B. S. Mason, A. C. S. Readhead, M. C. Shepherd, J. L. Sievers, P. S. Udomprasert, J. K. Cartwright, **A. J. Farmer**, S. Padin, S. T. Myers, and 16 coauthors, “The Anisotropy of the Microwave Background to  $l = 3500$ : Mosaic Observations with the Cosmic Background Imager”, Astrophysical Journal (2003) 591, 556

- B.S. Mason, T. J. Pearson, A. C. S. Readhead, M. C. Shepherd, J. Sievers, P. S. Udomprasert, J. K. Cartwright, **A. J. Farmer**, S. Padin, S. T. Myers, and 16 coauthors “The Anisotropy of the Microwave Background to  $l = 3500$ : Deep Field Observations with the Cosmic Background Imager”, *Astrophysical Journal* (2003) 591, 540
- A. Cooray, **A. J. Farmer**, “Occultation Searches for Kuiper Belt Objects” *Astrophysical Journal Letters* (2003) 587, 125

#### INVITED PRESENTATIONS

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- “Saturn in a Spin”, Canadian Institute for Theoretical Astrophysics seminar, November 2007
- “Saturn in a Spin”, Boston University Center for Space Physics Seminar, October 2007
- “Saturn in a Spin”, New York University Astro Seminar, October 2007
- “Saturn in a Spin”, Johns Hopkins Center for Astrophysical Sciences seminar, September 2007
- “Saturn’s spin periodicity controversy: recommendations for future work”, Magnetospheres of the Outer Planets meeting, San Antonio, June 2007
- “TBD”, University of Arizona Douglass Fellowship Colloquium, Spring 2008
- “How to escape from Saturn”, Columbia University Astrophysics Colloquium, April 2007
- “How to escape from Saturn”, UC Berkeley Theoretical Astrophysics/CIPS seminar, April 2007
- “Ghosts of Saturn: Understanding the Spokes”, UCLA Astronomy Colloquium, January 2006
- “Ghosts of Saturn: Understanding the Spokes”, Cornell Astronomy Colloquium, December 2005
- “Ghosts of Saturn”, Harvard Society of Fellows, October 2005
- “Ghosts of Saturn: Understanding the Spokes”, Harvard-Smithsonian CfA Theoretical Astrophysics Seminar, December 2004
- “Ghosts of Saturn: Understanding the Spokes”, Institute for Advanced Study Informal Astrophysics Seminar, Princeton, December 2004

#### CONTRIBUTED PRESENTATIONS, CONFERENCES

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- AAAS annual meeting, Boston, February 2008
- “Plasma convection at Saturn: how does it work, and what does it affect?”, AGU Fall Meeting, San Francisco, December 2007, contributed talk
- “Saturn’s rotation and plasma convection”, European Planetary Science Congress, Potsdam, August 2007, contributed talk
- KITP program “Accretion and Explosion: the Physics of Degenerate Stars”, 3-week visitor,

April-May 2007

- AGU Fall Meeting (San Francisco, December 2006) “Spontaneous Axisymmetry Breaking of the External Magnetic Field at Saturn”, contributed talk
- AAS (San Diego, January 2004) “Spokes in Saturn’s Rings”, Thesis talk
- IAU (Sydney, July 2003) “Gravitational Waves from Cosmological Compact Binaries”, Poster
- IAU (Sydney, July 2003) “Finding White Dwarfs with Transit Surveys”, Poster
- The Physics of Ultracompact Stellar Binaries (KITP, February 2003)
- Globular Clusters: Formation, Evolution and the Role of Compact Objects (KITP, January 2003)
- AAS (Seattle, January 2002) “The Gravitational Wave Background from Cosmological Compact Binaries”, Poster

## PROFESSIONAL AFFILIATIONS

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- Member of the American Geophysical Union 2007 – present
- Junior Member of the American Astronomical Society, 2000 – 2006
- Associate Member of the Institute of Physics, 2000 – present
- Undergraduate Member of the Institute of Physics, 1996 – 2000