

E. Sterl Phinney

Curriculum Vitae

Education:

Cambridge University (U.K.)
PhD (Theoretical Astrophysics): 1983 Advisor: (Lord) Martin J. Rees
California Institute of Technology
B.S. (Astronomy) : 1980

Employment:

California Institute of Technology:
Professor of Theoretical Astrophysics (1995–),
Associate Professor of Theoretical Astrophysics (1991–95),
Assistant Professor of Theoretical Astrophysics (1985–90),
The Institute for Advanced Study, Princeton:
Member with Long-Term Appointment (1983–85)
Visiting appointments (1985-2010): Johns Hopkins, Berkeley, KITP, IAS, ESO

Awards and Memberships:

Salpeter Lectureship, Cornell University (1999)
ASCIT Excellence in Teaching Award (1999)
Warner Prize of the American Astronomical Society (1995)
Alfred P. Sloan Foundation Research Fellow (1990–94)
Presidential Young Investigator (1985–1990)
Marshall Scholarship (1980–1983)
Fellow: American Physical Society, Royal Astronomical Society.
Member: American Astronomical Society

Recent Professional Activities:

Vice-chair, NASA Astrophysics Research Program Review (2010-2011)
Fachbeirat, Max Planck Institute for Gravitational Physics (2008-)
Chairman, LISA Sources and Data Analysis Working Group (2001–11)
Member, LISA International Science Team ('LIST') (2001–11)
Member, NASA Universe Exploration Strategic Roadmap Committee (2005-8)
Chairman, Astronomy & Astrophysics Panel of the NAS/NRC Committee on
Priorities in Space Science Enabled by Nuclear Power and Propulsion (2004-5)
Principal Investigator, NASA Mission Concept Study: the Big Bang Observer
[advanced gravitational wave mission] (2004-5)
Chairman, NASA OSS/SEU Strategic Plan Roadmap Team (2001–2003)
Member, NASA Structure and Evolution of the Universe Subcommittee (SEUS)
(2000–3)
Member, NASA SPIDR Technology Assessment Team (2002-2003)
Chairman, LISA Mission Definition Team (1997–2001)

Current Research Interests:

Astrophysical sources of gravitational radiation. Gravitational wave detection from space and its future. Pulsar physics. Physics around black holes. Interactions of binary white dwarfs and neutron stars.

Undergraduate SURF (summer research) students sponsored in past 5 years:

Guglielmo Lockhart, Raziman T.V., Christopher Moore

Graduate Advisees:

M. Coleman Miller (U. Md), Steinn Sigurdsson (Penn State), Lin Zuo (entrepreneur), Maurice van Putten (MIT and Nanjing U.), Alice Quillen (U. Rochester), Brad Hansen (UCLA), Sanjoy Mahajan (MIT), Michael Hartl (entrepreneur and author), Alison Farmer (Harvard), J. Nate Bode (Northwestern). Current students: Chris Wegg, Jing Luan

Postdoctoral fellows sponsored in past 5 years:

Marc Freitag, Jonathan Gair, Michael Hartl, Naoki Seto, Yasushi Mino, Étienne Racine, Jeandrew Brink, David Tsang, Michael Kesden, Tony Piro, Kumiko Kotera (lifetime total: 24).

Teaching:

ACM 95b (Introductory Methods of Applied Mathematics)
Ay 20 (Basic Astronomy and the Galaxy)
Ay 21 (Galaxies and Cosmology)
Ay 102 (Physics of the Interstellar Medium)
Ay 104 (Relativistic Astrophysics)
Ay 121 (Radiative Processes)
Ay 123 (Structure and Evolution of Stars)
Ay 124 (Structure and Dynamics of Galaxies)
Ay 125 (High-Energy Astrophysics)
Ay 126 (The Interstellar Medium)
Ay 127 (Cosmology and Galaxy Formation)
Ay 215 (varies with year: Star Formation; Disks and Accretion)
Ay 218 (varies with year: Physics of Accretion and Active Galactic Nuclei; Theory of Gamma-Ray Bursts; Gamma-ray Astronomy)
Ph 1b,c (Mechanics, Special Relativity, Electromagnetism)
Ph 101 (Order of Magnitude Physics)
Ph 236abc (General Relativity)

Current Caltech committees:

Undergraduate Academic Standards and Honors Committee
Core Curriculum Steering Committee
Physics Staffing Committee, Astronomy Staffing Committee, Astronomy Colloquium Committee, Astronomy Graduate Admissions Committee
Chair, PMA Divison Chair selection committee (1998, 2008, 2010)
Chair, Physics Prize Fellowship Committee

SELECTED PUBLICATIONS

1. Rees, M.J., Phinney, E.S., Begelman, M.C. & Blandford, R.D. 1982 *Nature*, 295, 17-21 “Ion-supported tori and the origin of radio jets”
2. Sanders, D. B., Phinney, E. S., Neugebauer, G., Soifer, B. T. & Matthews, K 1989 *ApJ* 347, 29-51 “Continuum energy distribution of quasars –Shapes and origins”
3. Phinney, E.S. 1991, *ApJL* 380, L17-L21 “The Rate of Neutron Star Binary Mergers in the Universe.”
4. Phinney, E.S. 1992, *Phil. Trans. Roy. Soc. Lond. A* 341, 39-71 “Pulsars as Probes of Newtonian Dynamics”
5. Phinney, E.S. & Kulkarni, S.R. 1994 *ARAA* 32, 591-639 “Binary and Millisecond Pulsars”
6. Sigurdsson, S. & Phinney, E.S. 1995 *ApJS* 99, 609-635 “ Dynamics and Interactions of Binaries and Neutron Stars in Globular Clusters”
7. Spruit, H. & Phinney, E.S. 1998 *Nature*, 393, 139-141 “Birth Kicks as the Origin of Pulsar Rotation”
8. Phinney, E.S. 2002, *Science Requirements for LISA*, available at <http://www.its.caltech.edu/~esp/lisa/LISTwg1.req-pr.pdf>.
9. Phinney, E.S. et al 2003 *Beyond Einstein: from the Big Bang to black holes*, NASA Publication NP-2002-10-510-GSFC.
10. Gair, J.R. et al 2004 *Class. Quant. Grav.* 21, S1595 [[gr-qc/0405137](http://arxiv.org/abs/gr-qc/0405137)] “Event rate estimates for LISA extreme mass ratio capture sources” Presentation and longer white paper distributed to LIST available at http://www.srl.caltech.edu/lisa/talks/phinney_wg1_dec03.pdf <http://www.vallis.org/publications/LISTEMRIreport.pdf>
11. Farmer, A. & Phinney, E.S. 2003 *MNRAS* 346, 1197-1214 “ The Gravitational Wave Background from Cosmological Compact Binaries”
12. Milosavljević, M. & Phinney, E.S. 2005 *ApJ* 622, L93-L96 “The afterglow of massive black hole coalescence”
13. Racine, É, Phinney, E.S. & Arras, P. 2007 *MNRAS* 380, 381-398 “Non-dissipative tidal synchronization in accreting binary white dwarf systems”
14. Phinney, E.S. 2009 <http://arXiv.org/abs/0903.0098> “Finding and Using Electromagnetic Counterparts of Gravitational Wave Sources”
15. Kesden, M, Lockhart, G., Phinney, E.S. 2010 <http://arXiv.org/abs/1005.0627> “Maximum black-hole spin from quasi-circular binary mergers”