Paul Shelton Ray

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Education

Ph.D. in Physics	California Institute of Technology	January 1995
	Thesis: *High-Sensitivity Searches for Radio Pulsars*	
	Advisor: Professor Thomas A. Prince	
M.S. in Physics	California Institute of Technology	June 1991
A.B. in Physics	University of California, Berkeley	May 1989
	High Honors in Physics	
	Honors Thesis: *Proposal for a Cryogenic Dark Matter Detector*	
	Advisor: Professor Andrew Lange	

Professional Interests

- X-ray timing studies of neutron star and black hole binaries.
- Multiwavelength investigations of compact object binaries.
- Formation and evolution of neutron star systems, particularly millisecond pulsars and very young pulsars.
- High-speed digital signal processing hardware and applications of parallel supercomputing.

Research Experience

- **Astrophysicist, October 1997 to present, Naval Research Laboratory**

  Instrument Team, USA X-ray timing experiment. Led USA data system design and science software development. USA operations support, troubleshooting and calibration. X-ray binary studies using USA, XTE, and ground-based radio observatories. Design studies for a new low frequency radio array (LOFAR).

- **NRC Research Associate, February 1995 to October 1997**

  Construction and utilization of a wide-bandwidth digital filterbank for radio pulsar observations. XTE observations of high-mass X-ray binaries. Radio monitoring of X-ray binaries. Scientific software development for USA X-ray timing experiment on the ARGOS satellite.

- **Research Assistant, September 1989 to January 1995, California Institute of Technology**

  Development and utilization of software for pulsar searching using massively parallel supercomputers. Projects included a large area search for fast, high Galactic latitude radio pulsars from Arecibo, deep searches for pulsars in supernova remnants and timing of a new millisecond pulsar.

- **Scientist, Summer 1987, 1988 & Vacations, Pacific Sierra Research**

  Development and modification of a two-dimensional finite-difference Maxwell's equation solver including non-linear conductance changes from heating and ionizing the atmosphere, for use in predicting short range electro-magnetic pulse from detonation of a nuclear device.

Honors, Committees, and Professional Society Memberships

- 2001 Alan Berman Research Publication Award
- Member, NASA RXTE User Group (1999-present)
- Member, American Astronomical Society, 1992–present, URSI 1996–present
- Phi Beta Kappa (Academic honor society) and Sigma Pi Sigma (Physics honor society)