

Curriculum Vitae: Stuart L. Shapiro

Professional Preparation

Undergraduate Institution: Harvard University, Cambridge, MA.

Major: Astronomy Degree: A.B., Summa Cum Laude, 1969

Graduate Institution: Princeton University, Princeton, NJ.

Dept: Astrophysical Sciences Degrees: M.A., 1971; Ph.D., 1973 (Advisor: P.J.E. Peebles)

Postdoctoral Institution: Cornell University, Ithaca, NY.

Areas: theoretical astrophysics & general relativity Dates: 1973-1975

Appointments

- 1996 - Professor of Physics and Astronomy, and NCSA Senior Research Scientist, University of Illinois at Urbana-Champaign (UIUC)
- 1981 - 1995 Professor of Astronomy and Physics, Cornell University.
- 1978 - 1981 Associate Professor of Astronomy, Cornell University.
- 1975 - 1978 Assistant Professor of Astronomy, Cornell University.

Selected Honors and Awards

- 1979 – Alfred P. Sloan Research Fellowship
- 1984 – Assoc. of American Publishers Award for physics textbook:
Black holes, white dwarfs & neutron Stars: The physics of compact objects
- 1985 – Teaching Citation (Cornell in 1985, 1988 & UIUC in 2003, 2012)
- 1989 – 1990 John Simon Guggenheim Memorial Foundation Fellowship
- 1990 – IBM Supercomputing Competition Award
- 1990 – Frontiers of Large-Scale Computation Award
- 1991 – First Prize, IBM Supercomputing Competition
- 1996 – Offered B. Tinsley Visiting Prof. of Astronomy, University of Texas at Austin
- 1998 – Fellow of the American Physical Society
- 2004 – Fellow of the Institute of Physics (U.K.)
- 2006 – Amity High School Hall of Honor
- 2015 – Plenary Speaker, Kavli Special GR Centennial Symposium, April APS Meeting
- 2016 – Plenary Speaker, GR Centennial Celebration, Northwestern University
- 2017 – Hans A. Bethe Prize of the American Physical Society
- 2025 – 40th-Year Celebration by Int. Soc. on Gen. Rel. and Gravitation of textbook publication:
Black holes, white dwarfs & neutron Stars: The physics of compact objects

Complete Bibliography: <https://physics.illinois.edu/people/directory/profile/slshapir>
(440 journal publications + 4 books + 63 simulation movies)

Five Significant Publications

Textbook: *Black holes, white dwarfs and neutron stars: The physics of compact objects.*

S. L. Shapiro, & S. A. Teukolsky, (John Wiley, New York), 645 pgs (1983)

Textbook: *Numerical relativity: Solving Einstein's equations on the computer.*

T. W. Baumgarte, & S. L. Shapiro, (Cambridge University Press, Cambridge), 720 pgs (2010)

Textbook: *Numerical relativity: Starting from scratch.*

T. W. Baumgarte, & S. L. Shapiro, (Cambridge University Press, Cambridge), 220 pgs (2021)
Accretion onto black holes: The emergent radiation spectrum. S. L. Shapiro.

Astrophys. J., 180, 531-546 (1973)

Numerical integration of Einstein's field equations. T. W. Baumgarte, & S. L. Shapiro.

Phys. Rev. D, 59, 24007/1-7 (1998) [BSSN]

Selected Professional Experiences and Synergistic Activities

Involvement of undergraduates in research: Supervise a team of six undergraduates in theoretical astrophysics and GR, with focus on numerical GR simulations, data analysis and visualization.

Innovative teaching: Developed four new courses for advanced undergraduates and beginning graduate students – GR, the physics of compact objects, computational physics and astrophysics (with numerical lab), and stellar dynamics – and co-authored three accompanying textbooks.

Promoting public scientific interest and literacy: Multiple lectures and media interviews to broaden scientific understanding. Proposed and launched the Icko Iben, Jr. Distinguished Public Lecture Series in the UIUC Department of Astronomy and participated in the Saturday Physics Honors Program in the UIUC Department of Physics to communicate to high school students, their teachers and the broader public the latest advances and discoveries in GR and astrophysics. Invited speaker at American Museum of Natural History & Hayden Planetarium launching of the Rose Center (broadcast on *Discovery* channel; 2000). Interviews with *N.Y. Times*, *Economist*, *PBS*, *Science News*, *New Scientist*, *Scientific American*, *Nature*, *Popular Astronomy* & local newspaper *News-Gazette* and TV (2000-2022). Participant in the Art-Science Festivals co-hosted by the Dept of Physics (2019 & 2020) and Astrofest hosted by the Dept of Astronomy (2023). AIP oral history interview (2021). Maintain GR group web page (with movies) for colleagues and the general public: <http://tinyurl.com/shapiromovies>.

Professional Service: Delegate to Moscow representing the National Academy of Sciences (NAS) to formalize US-USSR collaboration in astrophysics (1976). Astronomy Advisory Committee's Subcommittee for the Review of Research Programs of the Astronomy Research Section of the NSF (1987). Associate editor, *ApJ Letters* (1987-1990). Computing and Data Processing Panel of the Astronomy and Astrophysics Survey Committee, National Research Council (NRC) of the NAS (1989-1990). Editorial Board, *International Journal of Modern Physics C (IJMPC)*, *Physics and Computers* (1990-1995) and *Classical & Quantum Gravity* (2003-2009). Co-chair, Panel on Infrastructure Issues for Computational Science, NRC of the NAS (1993). Task Group, Gravity Probe-B, Space Studies Board, NRC of the NAS (1995). Chair, Compact Objects Proposal Selection Panel, NASA Astrophysics Theory Program (ATP; 1995). LISA Mission Definition Advisory Team, NASA (1991-2001). CAREER Awards Panel, Division of Physical Sciences, NSF (2004). UIUC Physics search committee targeting women & underrepresented groups for a tenure-track position in gravitational physics (2019).

Refinement of software tools for community: co-developed the BSSN scheme for numerical relativity and the Illinois GRMHD AMR code (now an open-source module in the Einstein Toolkit).

Grants and Student Training: PI on NASA ATP grants since program inception and PI and co-I on individual investigator NSF grants since 1977. Co-I on *NSF Binary Black Hole Grand Challenge* and *ITR:MHD Simulations in GR* projects. PhD advisor to 18 graduate students and supervisor of 39 postdoctoral students, all participants in multiple collaborative projects and publications.