

Nathaniel Joseph Fisch

Professional Interests

Plasma physics with applications to nuclear fusion, plasma devices, lasers, and astrophysics; complex liquids and continuum electrohydrodynamics; and statistical inference and pattern recognition.

University Education

MIT Department of Electrical Engineering and Computer Science
(BS in June, 1972; MS in January, 1975; Ph.D. in February, 1978)

Academic Honors and Prizes

EO Lawrence Award (2004)

Gold Medal, United States Department of Energy

Category: Nuclear Technology

Citation: *For his brilliant innovations in the theory of wave interactions in plasma; in particular, for the discovery of new methods for driving electric currents.*

<http://www.sc.doe.gov/sc-5/lawrence/04awardees.htm>

Fellow of NASA Institute for Advanced Concepts (2003)

Bronze Medal, United States Department of Energy for Outstanding Mentor (2002)

Office of Science, Undergraduate Research Programs

Citation: *In recognition of your dedication as a mentor. For your willingness to share knowledge and to inspire and instill confidence in the next generation of scientists and engineers by setting high expectations, seeking creative solutions, and immersing inquisitive minds in the world of science.*

American Physical Society Award for Excellence in Plasma Physics (1992)

Citation: *For fundamental theoretical investigations of noninductive current generation in toroidally confined plasmas*

Fellow of American Physical Society (1987)

John Simon Guggenheim Memorial Foundation Fellow (1985)

MIT National Scholar (1968—1972)

Employment

2000 — Associated Faculty, Department of Mechanical and Aerospace Engineering
1993 — Associate Director for Academic Affairs, Princeton Plasma Physics Laboratory
1991 — Director, Program in Plasma Physics, Princeton University
1991 — Professor, Department of Astrophysical Sciences, Princeton University
1986 Visiting Scientist, IBM T. J. Watson Research Center
1981 — 86 Consultant, Exxon Research and Engineering Co.
1978 — 91 Research Positions, Princeton Plasma Physics Laboratory

Selected Recent Professional Responsibilities

1999 — 2001 Member, NRC Fusion Sciences Advisory Committee
1998 Chair, Division of Plasma Physics of the American Physical Society
1998 Member, DOE Fusion Energy Sciences Advisory Committee
1991 — Academic Director and co-founder, NUF Undergraduate Summer Program

Ph.D. Students Supervised

M. Herrmann *98 (LLNL, *Cooling Alpha Particles with Waves*) APS Thesis Prize Winner
M. Malyshev *98 (Lucent, *Advanced Plasma Diagnostics for Plasma Processing*, co-advisor)
V. Savchenko *99 (Polymath Research, *Quantum and Radiation Effects in Plasmas*)
R. Heeter *99 (LLNL, *AE and IBW Studies for Controlling Fusion α Particles*, co-advisor)
D. Clark *03 (LLNL, *Raman Laser Amplification in Preformed and Ionizing Plasmas*)
Current Thesis students: A. Litvak (Archimedes, ABD), A. Smirnov, S. Son, and I. Dodin
Current Project students: A. Zhmorginov and N. Yampolsky