

## **Professor Robert J. Goldston**

Director

Princeton Plasma Physics Laboratory

Dr. Goldston is Professor of Astrophysical Sciences at Princeton University and an international leader in the fields of plasma physics and magnetic fusion energy with 33 years of experience. Since 1997 Professor Goldston has served as Director of the U.S. Department of Energy's Princeton Plasma Physics Laboratory (PPPL), a collaborative national center for plasma and fusion science. A key focus of his leadership has been to strengthen the collaborative nature of the U.S. fusion program.

Professor Goldston has been a primary contributor to the experimental programs of the major fusion devices at PPPL since 1975. His Ph.D. thesis was executed on the Adiabatic Toroidal Compressor tokamak. He played a leading role in experiments on the Princeton Large Torus and on the Poloidal Divertor Experiment tokamaks. During this time Goldston developed the theoretical and computational tools to analyze neutral-beam heating and advanced the physics of fast-ion interaction with non-axisymmetric magnetic fields, providing the theoretical understanding of the stochastic mechanism by which alpha particles are lost from fusion plasmas. Subsequently Professor Goldston served as Head of Physics on the Tokamak Fusion Test Reactor (TFTR), the largest magnetic fusion facility in the U.S. and one of only two in the world to operate with deuterium-tritium plasmas. TFTR achieved world-record values of fusion power and made fundamental contributions to the understanding of high-temperature plasmas.

Professor Goldston led the physics design for the U.S. Burning Plasma Experiment, and served as Chief Scientist on the Tokamak Physics Experiment design effort. These were both highly collaborative national efforts, which while they were not ultimately constructed, demonstrated the ability of the U.S. fusion laboratories to work effectively together on major projects. Goldston has lived and collaborated in Japan, working on both the JT-60U and JFT-2M experiments. He has close personal contacts with magnetic fusion leaders worldwide.

Professor Goldston provided leadership in the development of the physics mission and design of the National Spherical Torus Experiment, now operating at PPPL, and played the same role in the development of the mission and design for the National Compact Stellarator Experiment, now in construction. He has participated in five international ITER negotiating sessions that were open to members of the U.S. fusion community; in St. Petersburg, Russia; Garching, Germany; Tokyo, Japan; Culham, England; and Beijing, China. He has been asked to take responsibility for negotiations related to staffing issues, and in this capacity has worked closely with U.S. fusion community leaders, with the Department of Energy and with the State Department, in helping to develop U.S. negotiating positions.

Dr. Goldston is author or co-author of 220 papers on experimental and theoretical plasma physics in journals and conference proceedings, and in 1995 co-authored the textbook *Introduction to Plasma Physics*. He is a contributing author to five other books. In 1988 he was awarded the

American Physical Society Prize for Excellence in Plasma Physics. Professor Goldston is a Fellow of the American Physical Society.

In 1977 Professor Goldston received a Ph.D. from Princeton University in Astrophysics, Program in Plasma Physics. He received a B.A. degree from Harvard College in Physics, graduating magna cum laude in 1972.

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