CENTER FOR SPACE SCIENCE AND ASTROPHYSICS

Emeriti: (Professors) Ronald N. Bracewell, Robert Cannon, I-Dee Chang, Daniel B. DeBra, Von R. Eshleman, Robert A. Helliwell, Ronald J. P. Lyon, Laurence A. Manning, J. David Powell, John R. Spreiter, Peter A. Sturrock, Alan T. Waterman; (*Research Professors*) Donald L. Carpenter, Aldo V. daRosa, Henry T. Howard

Director: Robert V. Wagoner

Associate Directors: Umran S. Inan, Roger W. Romani, Philip H. Scherrer

Professors: Elliot Bloom, W. Gary Ernst, Lambertus Hesselink, Umran S. Inan, Peter F. Michelson, Bradford W. Parkinson, Vahe Petrosian, Norman H. Sleep, G. Leonard Tyler, Robert V. Wagoner, Arthur B. C. Walker, Jr.

Associate Professors: Bruce B. Lusignan, Roger W. Romani, Howard Zebker

Assistant Professors: Sarah Church, Guenther Walther

Professors (Research): C-W. Francis Everitt, Antony Fraser-Smith, Philip H. Scherrer

Associate Professor (Research): Chris Chyba

Consulting Professors: Alan M. Title, Martin Walt

The center is an interdepartmental organization coordinating teaching and research in space science and astrophysics. Its members are drawn from the Department of Geological and Environmental Sciences in the School of Earth Sciences; the departments of Aeronautics and Astronautics, Electrical Engineering, and Mechanical Engineering in the School of Engineering; the departments of Applied Physics, Physics, and Statistics in the School of Humanities and Sciences; the W. W. Hansen Experimental Physics Laboratory; and the Stanford Linear Accelerator Center.

Research now in progress covers a wide array of investigations and is approached in a variety of ways, including experiments flown on rockets, satellites, and space probes; ground-based observations made from the Hobby-Eberly Telescope, the Wilcox Solar Observatory, and from national observatories; and theoretical research including computer modeling. Topics currently being studied include cosmology, gamma-ray astronomy, gravitation theory and experiments, guidance and control, high-energy astrophysics, ionospheric and magnetospheric physics, microwave and infrared astronomy, planetary sciences, solar physics, solar-terrestrial phenomena, stellar structure, theoretical astrophysics, x-ray and extreme ultraviolet astronomy, and the study of life in the universe. Some of these projects involve opportunities for collaboration with scientists at the Lockheed-Martin Research Laboratory through the Stanford-Lockheed Institute for Space Research, the NASA/Ames Research Center, and the SETI Institute.

Stanford is a member of the Universities Space Research Association, a consortium of universities which operates the Lunar Science Institute in Houston, Texas; the University Corporation for Atmospheric Research in Boulder, Colorado; and the San Diego Supercomputing Consortium.

Stanford is the lead institution for the GLAST gamma-ray observatory, the EGRET experiment at the Compton Gamma Ray Observatory, Gravity Probe B, and the Solar Oscillations Investigation on the Solar and Heliospheric Observatory spacecraft (SOHO); and participates in the USA X-ray satellite and the Soft X-Ray Telescope program on the Japanese Yohkoh spacecraft.

Stanford is also a member of the Hobby-Eberly Telescope Consortium which has constructed a 10-meter telescope at the McDonald Observatory of the University of Texas. Full science operations have begun.

The facilities of the center are available to any interested and qualified student, who must be admitted by and registered in a department. The departments of Aeronautics and Astronautics, Applied Physics, Electrical Engineering, Mechanical Engineering, and Physics offer opportunities leading to an M.S. or Ph.D. degree for work in space science or astrophysics. The center also offers opportunities to undergraduates who may, for instance, participate in research projects in their junior or senior years, on a part-time basis during the school year or on a full-time basis during the summer. The Astronomy Course Program operates a small student observatory where students may gain practical experience in astronomical observing. The course list at the end of this entry includes courses of interest to undergraduates, as well as courses primarily of interest to graduate students.

Further information is available from the director.

COURSES

For descriptions, see the listings under the department's section of this bulletin.

AERONAUTICS AND ASTRONAUTICS

236A,B,C,D. Spacecraft Design

271A. Dynamics and Control of Aircraft and Spacecraft

279. Space Mechanics

290. Problems in Aeronautics and Astronautics

ELECTRICAL ENGINEERING

106. Planetary Exploration

249. Introduction to the Space Environment

350. Radioscience Seminar

352. Electromagnetic Waves in the Ionosphere and Magnetosphere

354. Introduction to Radio Wave Scattering

356. Elementary Plasma Physics: Principles and Applications

453. Geomagnetically Trapped Radiation

ENGINEERING

235A,B. Space Systems Engineering

PHYSICS

15. The Nature of the Universe

16. Cosmic Horizons

18N. Stanford Introductory Seminar: Revolutions in Concepts of the Cosmos

27. Evolution of the Cosmos

50. Astronomy Laboratory and Observational Astronomy

81Q. Stanford Introductory Dialogue: Lookback Time in Cosmology

82Q. Stanford Introductory Dialogue: Expanding Cosmic Horizons

100. Introduction to Observational and Laboratory Astronomy

160. Introduction to Stellar and Galactic Astrophysics

161. Introduction to Extragalactic Astrophysics and Cosmology

260. Introduction to Astrophysics

262. Introduction to Gravitation

301. Astrophysics Laboratory

360. Physics of Astrophysics

361. Stellar and Galactic Astrophysics

362. Extragalactic Astrophysics and Cosmology

363. Solar and Solar-Terrestrial Physics

364. Advanced Gravitation

463. Special Topics in Astrophysics