

Space Telescope

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the origin of interstellar polarization, as well as spectropolarimetry of white dwarfs, quasars and Seyferts to help delineate the physical processes occurring in these objects.

The high-resolution spectrograph is a photon-counting instrument that will provide a resolving power equal to that of the largest ground-based Coudé spectrographs. It can perform moderate- and high-resolution spectroscopy in the region above 1100 Å. The high-resolution spectrograph, like the faint-object spectrograph, has three modes of varying spectral resolution. The primary observing modes are with a resolving power $R = 10^5$, by far the highest on the space telescope, and with $R = 2 \times 10^4$. Most of the numerous scientific programs that have been suggested so far for the high-resolution spectrograph involve these two primary modes. The moderate-resolution mode has $R = 2 \times 10^3$, similar to the faint-object spectrograph. The partial redundancy between the two instruments is intentional. The moderate-resolution mode of the high-resolution spectrograph will be used for target acquisition, for estimating exposure times at high resolution and to provide sensitivity in the short wavelength region where higher resolution spectroscopy is not feasible. Among the observations suggested for the high-resolution spectrograph are studies of the very local gas, dense clouds and previously undetected molecules in the interstellar medium and a measurement of the D/H ratio in Halley's comet.

The high-speed photometer is designed to provide accurate, time-resolved photometric observations over a wide wavelength range, as well as linear polarization measurements in the uv. It will be capable of resolving two events occurring more than 16 microseconds apart. Observations of rapidly varying sources over time scales this short are difficult or impossible to obtain from the ground because of atmospheric fluctuation. Events measured with the high-speed photometer can be related to ground-based time standards with an accuracy of at least 10 milliseconds. This instrument is designed to be the simplest of the five initially installed in the observatory. It contains no mechanical parts and relies entirely on the fine pointing of the spacecraft to place an astronomical target onto one of its approximately 100 combinations of filters and apertures. The high-speed photometer makes possible a number of important scientific programs, including measurement of the shortest time scales for variability of compact extragalactic sources, accurate brightness measure-

ments of the zodiacal light and diffuse galactic light and the establishment of faint stellar calibration standards.

The telescope's fine-guidance system consists of three identical sensors, each having its own accessible area (60 arcmin²). In normal operations two of the sensors will be used for fine pointing with the aid of prespecified guide stars. The third sensor will be available for astrometric measurements. The fine guidance system sensor consists of rotating mirrors that can place any star that is within their field of view on an interferometer. The system determines accurate relative positions to ± 0.002 arcseconds by making repeated short measurements. With the aid of neutral density filters, stars in the magnitude range of $4^m \leq m_v < 20^m$ should be measurable. A photometric precision of one percent will be achievable in ten minutes on a 17th magnitude (visual) star. The fine guidance system can be used on a number of astrometric problems, including the gathering of parallax information on nearby stars and possible unseen companions.

Originally, NASA planned to launch the Space Telescope in 1984, but several technical problems forced the launch date forward ten months. —MEJ

References

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Press is new president of National Academy

Frank Press, who was science adviser to President Carter, will be the next president of the National Academy of Sciences. There had been some questions as to whether Press's election would violate the government's "revolving door" restriction prohibiting outgoing government officials from taking jobs with organizations that they were in a position to influence while holding their government posts. But a letter sent to the members of the Academy states that "After obtaining legal counsel from knowledgeable law firms and an advisory opinion from the Office of Ethics in Government . . . the Council concluded that the complications introduced by Mr. Press's recent service in the government would be minor."

Press will take office 1 July, succeeding Philip Handler, who will have held the presidency for 12 years, the maximum permitted by the Academy's by-laws.

A member of the Academy since 1958, Press has served on several study committees and has taken an active role in other Academy activities. He has been president of the Seismological



PRESS

Society of America and the American Geophysical Union. He was serving as professor and chairman of the Department of Earth and Planetary Sciences at MIT when, in 1977, President Carter appointed him as his science adviser and director of the Office of Science and Technology Policy.

Press received a PhD in geophysics from Columbia University in 1949. Faculty appointments followed at Columbia, Caltech, and MIT, the last in 1965. Among his many activities with the Federal government, he served with the Arms Control and Disarmament Agency (1961-64); as a member of the National Science Foundation's National Science Board (1970-76), and as a participant in the bilateral science agreement with the Soviet Union (1970-76).

His research interests have included crystal and mantle structure, earthquake mechanisms and elastic-wave propagation.

Group formed to promote academic fusion research

Fusion research faculty members have banded together to form the University Fusion Association, an organization intended "to promote the continued participation of university research groups in the fusion program." The establishment of the UFA occurred primarily as a response to a number of cutbacks in Federal funding for small academic fusion research projects made by Congress in the spring of 1979. The budget cuts, though restored since, convinced many fusion scientists that an organization was needed to look after their interests. A constitution has been adopted by the association's executive committee, which is headed by R.N. Sudan of Cornell University. Those interested in joining the University Fusion Association should contact Joyce Olive, 308 Upson Hall, Cornell University, Ithaca, N.Y. 14853. □