

SPECTROSCOPY AND IMAGING

Dr. Krzysztof Serkowski is searching for planets around solar-type stars. The minute changes of stellar radial velocity caused by a Jupiter-like planet should be detectable with a novel type of spectrometer utilizing

a solid-state detector array. Precise wavelength calibration is provided by a Fabry-Perot interferometer. The same instrument has also been used for measuring the rotational velocity of the stratosphere of Venus.



Dr. Bradford Smith is continuing his investigation of the outer solar system through imaging observations obtained from both groundbased telescopes and spacecraft cameras. The subjects of this research include the atmospheres of the Jovian planets, the surfaces of the satellites of Jupiter and Saturn, and planetary ring systems. Current spaceborne activity is centered on Voyager images of the Jupiter system which are being obtained and analyzed under Dr. Smith's direction as Voyager Imaging Science Team Leader.

Groundbased observations are being obtained with a buried-channel, back-illuminated, charge-coupled device (CCD) which produces photometric images of high quali-

ty and low noise over a wide spectral range. One of the programs being pursued with these data is an investigation of the limb-brightening and cloud morphology of Uranus and Neptune as they appear in the deep methane absorption band at 890-nm. Other areas of ongoing investigations are the rings of Saturn, the satellites of Uranus, and the dynamics and morphology of clouds in the atmosphere of Jupiter.

Additional groundbased data are being obtained in developmental support of a Wide Field/Planetary Camera to be flown on the Space Telescope. New CCD detectors are being tested and the methods of resolution enhancement of diffraction-limited images are being studied.