suggested from the optical region studies by Wright and collaborators. UV spectra are proving powerful tools since the hot dwarf out of eclipse provides a bright continuum for the strong resonance lines of O I, C II, C IV, Si II, Fe II and Mg II to reveal mass streaming and concentrations along the line of sight, with modest exposure. Dependent variations have been found, and we expect that full phase coverage will help in modeling the flow origin and geometry. Eclipse observations used in consort with the out-of-eclipse observations provide new information on the excitation of the circumstellar nebulae and mass streaming between the components. We will present profiles and integrated fluxes at various phases to demonstrate these concepts.

*Guest Observer, 10% satellite.

32.07 Moderate Resolution McGraw Hill Scanner Observations of Symbiotic and Related Stars. W. Blate, Univ. of Michigan, J. Stencel, JILA, U. of Colo. & NSR, W. Feibelman and A. Michaelianas, NASA-Goddard. - The Mark 2 on the 1.3 meter telescope at Kitt Peak has proven to be an exceptional instrument for various kinds of stellar observations. The instrument possesses numerous advantages over photographic spectroscopy for faint emission line objects, such as symbiotic stars (V < 12). Use of the scanner, in combination with IUE observations, enables us to obtain absolute flux calibrated observations and spectral coverage between 1200 A to 7000 A. This extended wavelength range opens up new diagnostic possibilities, for effective temperature determinations and for use of line pairs to delineate electron densities. The short integration times enable us to also search for suspected variability in lines, such as in IC 4997. High signal to noise permits searches for the so-called Ca X feature near 6830 A in symbiotics. Further, the numerical format permits experiments such as CS observations to be derived by differencing photometric wave maximum and wave minimum spectra. Results obtained to date include: a short period binary model for the eruptive symbiotic object M 19; observations of the eclipsing symbiotic Cr Cyg; a survey of northern symbiotic objects; variations in the spectrum of Cr Cyg (in collaboration with S. Kopp and S. Smith); CS observations of stars (in collaboration with D. Hall and R. Hohlfeld), and other interesting results. We will display these and other spectra as final reductions warrant.

32.09 Discovery of a Hotter Companion of the B8Ia Supergiant η Sagittarii. Mirek J. Flavec and Janet L. Welland, Univ. of Calif., Los Angeles - The single-line spectroscopic binary η Sagittarii has an unusually large mass function f(m) = 2.67 M\(_\odot\), which warrants search for a faint companion. IUE spectra have been combined with Lithod oxide scans (mostly obtained by R. S. Stone) to find the energy distribution between 110 – 680 nm. Excess flux shortward of about 160 nm and certain absorption lines detected with Copernicus (in collaboration with R. S. Poldom) indicated the presence of a star hotter than the observed B8Ia primary. Flavec's prediction of an eclipse of this component (1973: IAU Circ. 3333 and IUE No. 1998) was confirmed by IUE (Guinan and Sion) and Copernicus observations. Assuming that the eclipse is total, the two spectra can be separated and matched by interpolation. KURUCZ model B8.5V as follows: cooler star, T\(_{\text{eff}}\) = 11,000 K, log g = 2.0 (B8Ia), hotter star, T\(_{\text{eff}}\) = 18,500 K, log g = 4.5 (B8.5 V). More data is needed to confirm these values. The ratio of radii is about 5:1, ratio of luminosities 3:1. In the optical region, the hotter component is about 2.5 mag. fainter than the supergiant. With the period of 180.2 days, only one primary eclipse is now observable each year, in August/September. Its duration is uncertain and may be 10 – 20 days. An atmospheric eclipse may precede it, in which case we will be able to probe the stellar wind of the B8Ia supergiant — a unique opportunity. Our IUE scans confirm the quasi-periodic light fluctuations (oscillations?) found by Guinan and Dorren (private communication); the amplitude in V may be about 0.1 mag. Reddening is fairly strong, E(B-V) = 0.30. Using Hutchings' absolute visual magnitude M\(_{V}\) = -8.1 mag, we find a distance of 1.6 kpc. This investigation is part of a project supported by grants from NSF and NASA; the assistance of the NASA-IUE staff is deeply appreciated.

32.08 V 356 Sagittarii: Energy Distribution and FUV Emission Lines. Mirek J. Flavec and Jan J. Dobias, Univ. of Calif., Los Angeles - The Algol system V 356 Sag deserves special attention, since it is probably at the very end of its mass transfer phase. We obtained IUE observations at both eclipses (phases 0.02 and 0.50) and at phase 0.34, as well as numerous scans with the Lick IUE scanner (mostly taken by R. S. Stone). The system is fairly strongly reddened, E(B-V) = 0.27. The energy distribution of the cooler component is well fitted by an interpolated Kurucz model for T\(_{\text{eff}}\) = 9,250 K, log g = 2.85, while the hotter component is matched by T\(_{\text{eff}}\) = 18,000 K and log g = 4.25. The corresponding spectral types, A1.5 II and B3 V agree with Popper's values (1971: ApJ 171, 55). IUE spectrum taken at the primary (total) eclipse shows strong emission lines of N V doublet at 124 nm, Si IV doublet near 140 nm, and much weaker C IV doublet at 155 nm and Si III at 130 nm. These emission lines came as a surprise, since no emission are observed in the optical spectrum. Although the corresponding high dispersion spectrum is unfortunately too weak to be sure, it appears that the emission lines do not have the C IV profiles we found in δ Lyrae or β Andromedae, and which we believe are associated with accretion at high rates (cf. Flavec in Flavec, Popper, Ulrich (ed.): "Close Binary Stars: Observations and Interpretation", Reidel 1980, p. 251). Rather, they seem to show a broad double emission with a broad central absorption, like the circumstellar rings of the R Tauri type. Therefore the hot plasma may be associated with the circumstellar ring proposed by Wilcox and Caldwell (1978: ApJ 221, 917). Weakness of the C lines relative to N V may indicate that the circumstellar material was formerly processed by the CMO bi-cycle. Outflowing absorptions are replaced by broad deep absorptions. This investigation is supported by grants from NSF and NASA.