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17.32.05 1.5-2.4 Micron Spectra of SS 433. R. I. Thompson, G. Rieke, M. Leflofsky, and A. T. Tokunaga, Steward Obs., Univ. of Arizona — Spectra of the peculiar emission line object SS 433 were obtained in the 4200 to 6600 cm⁻¹ spectral range (1.5-2.4 μm) using the Steward Observatory Fourier-Transform Spectrometer. The observations were made on 1979 April 13 and 14 at a spectral resolution of 2 cm⁻¹ (120 km sec⁻¹). Broad, multicomponent emission lines corresponding to the red and blue shifted components of Pa are observed. The values of cz are 4.2×10⁶ and -1.6×10⁶ km sec⁻¹ consistent with the expected red and blue shifts for the time of our observations. No other shifted lines are observed. The Brackett series from Bv to B15 and lines of HeI are seen in emission. These lines appear to be narrow (FWHM < 5 cm⁻¹) with the exception of By and B12. The continuum is virtually flat in the bandwidth of our observations.

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Stellar

01.33.01 Photometric Calibration of the IUE: Low Dispersion. W.J. Burton, A.Y. Hulm, W.M. Sparks, NASA/ASEP; N.L. Savage, U. of Mich; M.A.J. Snijders, UCL—Ultraviolet spectra of standard stars were obtained by the IUE satellite in order to evaluate overall performance and to provide an absolute calibration. The reproducibility in broadband is 5% ± 1%, for repeated observations of the same star in the low dispersion observing mode. A similar scatter is present in narrow bands of 25 Å width. Standard stars, previously observed in the ultraviolet, provide the fundamental basis for the absolute calibration. A composite scale, derived from several sources of absolute flux measurements, is probably accurate to ±5% longward of 1200 Å. Independent calibrations derived in the United States and in Europe differ by less than ±5%, typically. Additional uncertainty in derived fluxes is caused by small non-linearities for objects with exposure levels differing from those of the standard star spectra. In the presence of high background, non-linearities can cause errors in derived fluxes of up to a factor of 2.

02.33.09 HEAO-1 Observations of X-Ray Emission From Stellar Flares. J. L. Linsky*, JILA, U. Colorado and NASA. S. H. Kohn, K. O. Mason, Space Sciences Lab., U. Calif., Berkeley, N. E. White and S. H. Pravdo, NASA GSFC — Two X-ray flares have been detected from each of two nearby dMe stars, AT Mic and AD Leo, with the 2J experiment on board HEAO-1. A spectrum obtained during one of the AT Mic flares fits an exponential + Gaussian model with a temperature ≈ 3 x 10⁷ K. Simple power law models are excluded by the data. Assuming the exponential spectrum, the derived X-ray luminosities for the two AT Mic flares are: 1.6 x 10³⁸ and 4.6 x 10³⁰ ergs s⁻¹, and for the two AD Leo flares are 1.3 and 1.6 x 10³⁴ ergs s⁻¹. Lower limits to the X-ray-to-optical ratios can be calculated using Kunkel's flare occurrence rates and are found to be ≥ 1 for each star. Implications in terms of flare models will be discussed. This work is supported by NASA.

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03.33.05 Simultaneous X-ray, UV, Optical, and Radio Observations of the Flare Star Proxima Centauri. B. M. Raich* and J. L. Linsky*, JILA, Univ. of Colo. & NASA. O. B. Sileo, OSRIO, and S. P. Worner, ASP — We report on the results of a simultaneous observing program for the dm5e flare star Proxima Centauri on 6,7 March 1979. Ten time-trailed low dispersion exposures were made with IUE, five each in the long (2000-3400 Å) and short (1000-2000 Å) wavelength regions. Overlapping X-ray observations (0.1-6 keV) were obtained by the Imaging Proportional Counter on HEAO-2. Simultaneous ground based radio observations (6 cm) were made at the Parkes Radio telescope, and optical monitoring throughout this period was provided by several observatories in Australia and New Zealand. Summing all the IUE observations together we find stellar emission features due to Lo (1216 Å), Mg II (2800 Å), C I (1275, 1657 Å), C II (1335 Å), and C IV (1549 Å). Emission lines of Si II (1817 Å), He II (1640 Å), and N V (1239 Å) may also be present weakly. These lines are produced in the nonflaring stellar chromosphere and corona. During one likely flare C I and C IV are strongly enhanced and N V and He II are clearly present in the data, whereas the quietest spectrum for the same integration time does not show the latter two lines. In preliminary reports HEAO-2 detected a strong X-ray source at or near the location of Proxima Centauri and Parkes detected several 6 cm radio flares. We will present the detailed X-ray spectral and temporal data and optical photometry if available.

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