posing prescribed temperature rises on published model photospheres in the region of the HR diagram which is occupied by Rs CVn active secondaries (T=4000-6000 K, log g=2-4). We use a hydrogen atom containing 5 levels plus continuum to predict emergent flux profiles of Hα, Hβ, and Hγ (cf. Cram and Mullan, Ap. J. 234, 579, 1979). The Hα line in the Rs CVn system λ And has been observed at several epochs by Bopp and Smith (prepublication results). The observed profiles are much too wide to be fitted by any of our static model chromospheres. Rotational broadening cannot be important in this pole-on system. We have applied macroturbulent velocities derived from the isotropic Gaussian distribution exp -(v/v₀)². This fits the observed profiles well if v₀ = 20-40 km/sec. We propose that these large macroturbulent velocities can be attributed to non-static magnetic structures in the atmosphere, and that these magnetic structures are also responsible for the vigorous activity which is characteristic of RS CVn secondaries. In our view, the atmospheres of RS CVn secondaries are in a state of constant magnetic upheaval, perhaps because closed magnetic loops cannot find static equilibrium when they emerge from beneath the photosphere into the corona.

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International Ultraviolet Explorer (IUE) in the far-ultraviolet (1150-2000 Å) spectrum of the archetype red giant Arcturus (K2 III) are A-X fourth positive bands of carbon monoxide excited by chromospheric emissions of O I, C I and N I. The appearance of fluorescent CO bands near the wavelengths of commonly used indicators of high-temperature (T > 2x 10⁴ K) plasma, such as C II λ1335 and C IV λ1548, introduces a serious ambiguity in diagnosing the presence of hot material in the outer atmospheres of the cool giants by means of low-dispersion IUE spectra as weak emission features may not be C II and C IV. A test of whether emission features at 1340 Å and 1545 Å are CO is that the expected ratio for CO fluorescence are f(1340)/f(1335) ≈ 1/2 and f(1545)/f(1548) ≈ 1/2. Other stars whose spectra probably show CO fluorescence include ζ Leo (K5 III), η Dra (K5 III), R UMa (K4 III), and probably also ζ Cyg (O8 Ib) and 9 Peg (O5 Ib)

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Guest Observer with the International Ultraviolet Explorer Satellite.

05.02 The Corona and Chromosphere of Proxim Centauri During Flare and Quiescent Times. B. M. RAISCH,* Lockheed Palo Alto Res. Lab., N. L. BORNMANN, J. L. LINKFEY,* JILA, Univ. of Colo., & NBS, and O. B. SLEET, STIBIO, X-ray measurements and ultraviolet spectra (175-3200 Å) of the 6m5e flare star Proxim Centauri with the Imaging Proportional Counter on Einstein (HEAO-2) and the UV Spectrograph on IUE have detected quiescent coronal emission at a temperature of 4x10⁶ K and faint chromospheric and transition region emission lines (Mg II, Fe II, C IV, Si IV, N V), the first definitive observation of coronae on M dwarfs (Ap. J., 236, L33). A bright, time resolved soft X-ray flare was also observed at that time (6 and 7 March 1979) reaching a maximum temperature of 17x10⁶ K and a peak luminosity of 7.4x10⁷ ergs/s, comparable to a large solar flare (Ap. J., 262, 1989). On 20 August 1980, with the Imaging Proportional Counter on Einstein, and ground based observing program. Preliminary reduction of the IUE data indicate another major flare occurred with considerable enhancement of the ultraviolet emission line spectrum. For example, the C I λ1657 Å line brightened by a factor of 2 and the C IV λ1549 Å line by a factor of 3. These enhancements would be considerably larger if the flare duration were less than the 60 minute IUE observation. We will present these new observations in conjunction with the previous measurements and recent SMM data on solar flares.

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Guest Observer, Einstein Observatory (HEAO-2) and the International Ultraviolet Explorer.

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05.04 Photoelectric Scans of Field Horizontal-Branched Stars. A. G. DAVIS PHILLIP, Union College and Dudley Observatory and D. S. NAYES, KPMO. Over the past two and one half years a group of stars classified in the literature as field horizontal-branched stars has been scanned with the Harvard scanner at CTIO and KPMO. The stars HR 718, 3454, 4468, 5311 and 9087 were used as standard stars and have been measured an average of over 35 times each. Typical rms errors in a 40 Ångstrom slot at 3400 Ångstroms are ±0.02 mag. A catalogue of the mean energy distributions for each star will be displayed at the poster session.

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