VERNAZZA, G.L. WITHBROE, Center for Astrophysics; Harvard College Obs., Smithsonian Astrophysical Obs.- The EUV emissions of the plage, sunspot, filament and network components of a well developed active region are identified and compared. The relative densities of these components are measured from the intensity ratios of singlet and triplet transitions in CIII and O V. Values of the brightness temperatures, $T_B$, and color temperatures, $T_C$, are determined from the Lyman continuum. Their relative magnitudes are used to discuss $b_1$, the ground state population coefficient together with $\alpha_1$, the aperture filling factor of the spectrometer. The evolution of the EUV features is discussed with reference to the structure of the active region in magnetograms and in photoheliograms with sub arc second resolution at Ca K and H$\alpha$.

26.07.03 ATM Observations of Solar Flares in the Extreme Ultraviolet. R. W. ROYER, P. V. FOZAZ, M.C. E. HUBEN, E. M. REEVES, E. J. SCHMIDT, J. G. TIMOTHY, J. E. VERNAZZA, G. L. WITHBROE, Center for Astrophysics; Harvard College Obs., and Smithsonian Astrophysical Obs. - EUV observations of solar flares with high spectral, spatial and temporal resolution are reported. Spectra with 5 arc second spatial resolution show very large increases in intensity during flares, coupled with large changes in relative line intensities. The EUV spectrum of different flares varies greatly, some showing preferential enhancement of coronal lines, others preferential enhancement of chromospheric and transition zone lines. Limits on density enhancements in flares are inferred from ratios of density-sensitive line pairs and from the brightness and color temperature of the Lyman continuum. Propagation of the flaring region along the slit, with velocities of several hundred kilometers per second, occurs simultaneously in chromospheric and coronal lines. High time resolution observations of flares were obtained simultaneously in five EUV wavelengths; they show large and very rapid changes occurring simultaneously at temperatures from $10^4$ to $10^6$ K.

26.08.03 Dynamical Analysis of Solar Flare Excitation. R.H. LEVINE & Y. NAKAGAMA, High Altitude Observatory, National Center for Atmospheric Research* - The velocity field comparable to the relative motions of sunspots is determined from consecutive magnetograms of a fine quality obtained near the disk center of the sun during August 24-26, 1972 (courtesy of the Kitt Peak National Observatory) using the method suggested previously by Nakagawa (1973, submitted to Ap.J.). The velocity fields show relative motions of sunspots in agreement with those deduced from the white light photographs. Further it is shown that the most likely positions of initial flare activity correspond to locations where a local maximum in the rate-of-strain of the velocity field coincides with either zero gradient (maxima and saddle points) or zero value (neutral lines) of the vertical magnetic field.

*The National Center for Atmospheric Research is sponsored by the National Science Foundation.

26.09.03 Polarization Observations of Solar Active Regions at 7.875 GHz. - M.D. PAPAGIANNIS, K.K. AKROM & J. KOUTS, Department of Astronomy, Boston University, and N.M. STRAKA, Air Force Cambridge Research Laboratories.- From June 27 to July 26, 1973 we performed extensive observations(-100 hrs on 17 different days) of left and right circularly polarized emission at 7.875 GHz from solar active regions using the 14 ft. antenna of the Haystack Observatory, with a beamwidth of 75 mdeg. During this period, which in general was very quiet, we made

26.10.03 Quiescent Solar Prominences in H-1 $\alpha$. D. K. Prinz, Nav. Res. Lab. - During a rocket flight on 1972 July 10 a spectroheliograph built by the Naval Research Laboratory photographed quiescent solar prominences in predominantly H-1 $\alpha$ radiation with 5" resolution. The instrument, film calibration procedure and densitometry techniques have been described by D. K. Prinz (1973 Solar Phys. 28, 35). Magnetic tape recording of the densitometry permitted the subsequent computer creation of intensity contour maps. These maps display the structure of the prominences out to about 40" above the limb as well as the structure in adjacent regions of the limb. The contour levels are for values of the intensity from 4.5 x $10^{-4}$ to 5.5 x $10^{-4}$ photons cm$^{-2}$ sec$^{-1}$ sterad$^{-1}$. Mappings are presented for regions containing four prominences. The radial gradient of the intensity through two of the prominences is compared in detail with the radial gradient near the limb in adjacent regions.