45.06.05 Nebular Observations and Stellar Coronae. L. Hartmann and J. C. Raymond, CPA - We examine the ways in which nebular observations of Hg II λ4686 can be used to infer the existence of coronae or hot winds in early-type stars. The O VI λ3341, Hα line is seen in the spectra of some central stars of planetary nebulae, and several authors have considered this to be evidence of a coronal wind. Observations of NGC 6751 reinforce this view by showing that radiative equilibrium model atmospheres cannot sufficiently photoexcite the O VI transition without producing too much nebular emission at λ4686. The hot gas in the coronal model produces a significant amount of radiation at energies > 54 eV, and therefore the Hg II λ3341 emission can be observed. Discrepancies between the Hg II λ3341 temperatures and other methods of deriving the effective temperature from fluxes at energies below 54 eV may indicate the presence of coronae.

45.07.05 The Ca II λ8542 and λ8498 Lines as Important Indicators of Stellar Chromospheres. J. L. LINSCY, JILA, NBS and Univ. of Colo., D. W. HUNTER, Lunar and Planetary Lab., Univ. of Ariz., R. SOWELL, KPNO, and D. L. GLACKIN, JILA. - We have obtained 0.14 Å resolution spectra of the Ca II λ8542 and λ8498 lines in 51 stars using the KPNO 2 m spectrograph in the McMath telescope FITS room and a silicon diode vidicon detector. Stars with bright Ca II λ8498 line emissions for their spectral type ("active chromosphere" stars) typically show larger central residual intensities compared to quiet chromosphere stars, suggestive of filling-in by chromospheric emission. Ratiing or differencing spectra of active versus quiet chromosphere stars of the same spectral-luminosity type clearly brings out the signature of an active chromosphere.

We find that spectroscopic binaries such as λ And, ζ Gem, and η Boo A show strong but variable emission in their ratio profiles. Absolute chromospheric fluxes in λ8542, which are important contributors to the total chromospheric radiative loss, are derived for the active chromosphere stars. We discuss the width of the λ8542 ratio line profiles, and whether there is evidence for enhanced photospheric temperatures in active chromosphere stars.

45.08.05 Modeling of Chromospheric Activity in M Dwarf Stars and the Sun. W. L. KELCH and J. L. LINSCY, JILA, NBS and Univ. of Colo., and S. P. WORDEAN, APOG. - We compare semidetritical models of "active" and "quiet" chromosphere stars and models of solar plages and quiet regions to determine the extent to which chromospheric activity can be understood in terms of changes in the chromospheric temperature versus mass column density structures. We use partial redistribution calculations of Ca II K and Mg II h and k as diagnostics. The stellar Ca II K data are from high resolution (70 mA) 6m echelle spectrograms (Worden, Linsky and McClintock 1978, Ap. J. Suppl., submitted), the stellar Mg II observations are from Copernicus (McClintock 1977), the solar Mg II plage observations are from the NRL spectrograph on Skylab (Doschek and Feldman 1977, Ap. J. Suppl., in press), and the solar Ca II K data are from Sac Peak spectrophotographs taken at approximately the same time as the Mg II data.

The chromospheres of the active chromosphere stars ε Eri (KZV) and 70 Oph A (KOP) are characterized (Kelch 1978, Ap. J., in press) by steep lower chromospheric temperature rises and subsequent ~7000 K temperature plateaus extending out to log g = 6.0 (the mass column density at the top of the chromosphere), directly on the log g - log g relation previously found for "quiet" stars of a range of spectral and luminosity classes (Kelch et al. 1978, Ap. J., in press). This implies that the primary difference between "quiet" and "active" chromosphere stars is the lower chromospheric temperature gradient. However, in solar plages log g increases with increasing Ca II K and Mg II h and k emission, resulting in a thinner chromosphere contrary to the results for ε Eri and 70 Oph A. Results from the analysis of Ca II K data for several other dwarf stars of types F to M are presented.

45.09.05 Atmospheric Compositions of HgMn Stars. Y. D. HEACOX, NASA/SSFC - The abundances of 21 elements in six normal and 23 HgMn stars have been analyzed using UV and blue photographic spectra of 6.3 Å reciprocal dispersion. The method of analysis is that of a grid of line-blanketed model atmospheres, under the principal assumptions of LTE and radial chemical homogeneity. The results have been interpreted in terms of those stellar properties of interest to the diffusion theory: temperature, rotation velocity, and age. The abundances of several elements show correlations with temperature and age that are in the sense expected if diffusion were responsible for HgMn abundance anomalies, although the trend toward less helium in hotter stars may be difficult to reconcile with diffusion. No correlation of the extent of abundance anomalies with projected rota-