100.10

The Ultraviolet Photospheric Spectrum of α Orionis
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The Goddard High Resolution Spectrograph (GHSR) team has obtained complete wavelength coverage of the α Orion from 2000 to 3300 Å using the moderate resolution (R = 20000) mode of the GHSR on board the Hubble Space Telescope. This atlas supplements the low resolution spectral data (1000 - 2000 Å) previously obtained. The spectrum is rich in both emission and absorption features and will prove to be useful in studies of cool star chromospheres. Longward of 2500 Å the photospheric continuum becomes a prominent feature of the spectrum, although a continuum can be seen below this wavelength. We have previously reported on the continuum flux shortward of 2000 Å that likely originates in the chromosphere. By comparison with IUE high-dispersion spectra (Wing, Carpenter, and Wahlgren 1983, Atlas of High Resolution IUE Spectra of Late-Type Stars) it becomes obvious at the higher resolution of the GHSR spectrum that many of the highest flux levels in the IUE spectrum longward of 2500 Å are actually weak emission lines. Thus, the photospheric continuum can be more accurately located in the GHSR spectrum. We have fit the photospheric spectrum with synthetic spectra generated by the SYNTH code (Kurucz) in order to study the absorption spectrum. Such an analysis will be useful for comparing the abundances of elements in the photosphere and circumstellar environment, detecting weak fluorescence processes, searching for previously unidentified molecular absorptions, and improving emission-line fluxes.

100.11

High Resolution Speckle Imaging of Stars with Composite Spectra
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We report the first application of a speckle imaging system developed at Georgia Tech Research Institute to the study of stellar objects. The GTRI system has been designed for high resolution (<0.2") recovery of faint and bright objects, and it utilizes a CCD camera with a quantum efficiency approaching 90%, optimized for low readout noise (~8 electrons) at high readout rates (10^5 pixels/second). Observations of solar and solar system objects were made using the 2.4-meter and 1.3-meter telescopes at the Michigan-Dartmouth-MIT Observatory in September 1992. Speckle images of 57 stars classified as having "composite spectra" in the Michigan Spectral Atlas and an additional 8 long-period variables believed to have companions were obtained to search for or confirm duplicity; imaging studies of Mars to detect and differentiate dust storms from water vapor clouds were also carried out. Results of the speckle astrometry programs are presented, as well as a fuller description of the performance characteristics of the imaging system under actual observing conditions.

100.14

High-Resolution Spectroscopy of Extremely Metal-Poor Stars
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We present a progress report on follow-up high-resolution spectroscopy of extremely metal-poor stars selected from the HK plate-search program. Additional high-resolution data have been obtained for about two dozen candidates with [Fe/H] < -3.0, using CTIO 4m echelle spectra of the Ca II triplet features, from which the calibration of the BPS metallicity scale at low metallicities may be refined, and the metallicity function re-examined. For a handful of the most metal-poor giants in this group, additional CTIO blue spectra at a resolution of 30,000 have been obtained to derive the abundance ratios of a variety of elements, light and heavy. We discuss these abundances in the context of previous work on the most metal-poor stellar abundances. This work has been supported by NSF grant AST 90-1376 to Michigan State University.