ABSTRACTS

22.02 First Results of Imaging of Supergiant Envelopes with The Differential Speckle Interferometer. J. W. Beckers, MIT/UA and L. A. Nakai, K. E. Heggy, H. P. Murphy, and F. Burnett, U. OF.

We use simultaneous speckle images obtained through a narrow band filter (0.45 Å bandwidth) in the Na line and in the nearby continuum to construct images of the Na corona around α Ori and other supergiants using a technique called "speckle holography." Observations were made with the University of Arizona 2.3 meter telescope which does not resolve the continuum images but which does resolve the images of the Na envelope. Images of the Na corona with 0.1 arc second angular resolution will be presented as seen at different wavelengths in the Na line and in different directions of linear polarization. On the basis of these, information will be derived on the structure, doppler shifts, and magnetic fields in the Na corona.

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22.01 Radio Observations of the Inner and Outer Regions of Red Supergiant Winds. R. M. Biermann and K. W. Birkeland, National Radio Astronomy Observatory, Socorro, NM - VLA radio observations of α Ori (Betelgeuse) and α Sco (Antares) at 1.4, 4.89, 15, and 22 GHz show radio spectra of 0.24 ν GHz and 0.47 ν GHz mJy, respectively. These spectra are produced by optically thick, thermal radio emission from layers ranging from 1 to 4 stellar radii as ν changes from 90 to 1.4 GHz.

The a Sco system has a second radio source in the form of a roughly 5° nebula surrounding the B2.5V star.4° west of the M1.5ab star (Antares). The map of the 4.89 GHz emission of a Sco is shown below, with the point source on the left corresponding to the position of Antares and the location of the companion B star indicated by a large X. The 1.4 and 4.89 GHz maps are consistent with an optically thin radio source produced by the B2.5V star ionizing part of the outer structures of the stellar wind from Antares. However, the expected emission at 15 MHz was not found, indicating either that it is not entirely an HII region, or that atmospheric effects seriously deteriorated these data.

22.04 An Atlas of High-Resolution IUE Spectra of Late-Type Stars. JF. WING, K. P. CARPENTER, and G. M. WAGNER, Ohio State U. - The ultraviolet spectra of 13 late-type stars, as observed with the IUE satellite of the International Ultraviolet Explorer satellite in the high-resolution mode, have been plotted in the form of an atlas. The scale of approximately 5 Å per inch and the format of 50 Å per page should be convenient for quantitative measurements. The spectra are plotted in pairs to facilitate direct comparisons. The wavelength range, in most cases, extends from 2500 to 1230 Å. For some of the stars we have plotted a composite spectrum made from two or more IUE images of different exposure time in order to extend the wavelength range and to avoid saturation in the brighter portions of the spectrum. The stars included in the Atlas are:

HR 483 (G2 V) α Cas (K0 III) β And (M0 III)
ζ Cap (G5- Ba) ζ Uma (K0 III) ζ Peg (M2 III)
κ Gem (G8 Ib) κ Boo (K2 IIIp) α Ori (M2 III)
β Gem (K0 IIIb) α Tria (K5 II) γ Cru (M3 III)
α Tau (K5 III)

The inclusion of a G2 V star permits direct comparisons with available solar atlases. Line identifications have been carried out for the emission lines in γ Cru and for both emission and absorption lines in α Boo.

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