

## POLARIMETRY OF EMISSION LINES AS A PROBE OF STELLAR WINDS

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The motivation for obtaining optical polarization data of close binary systems and/or stars exhibiting stellar activity (*i.e.*, flares, winds, chromospheres, spots, etc.) is that polarization is not only dependent on the physical condition of the stellar environment but is actually rather sensitive to geometric factors and can act as an excellent diagnostic of the latter.

High resolution, multichannel spectropolarimetry of certain emission-line stars was demonstrated to be a powerful new technique in studying the physics and kinematics of stellar envelopes. Two sources of polarization were discussed *viz.*, (1) fluorescent (resonant scattered) emission lines similar to those found in the solar chromosphere and corona, which can be highly polarized and sensitive to magnetic fields, and (2) Doppler broadened emission lines formed in a rotating/expanding stellar wind. The Doppler broadening effectively provides spatial resolution, so that as one scans a line polarimetrically, scattering from different regions of the stellar wind is observed according to its kinematical motion.

Observations of H $\beta$  flux and polarization profiles (with 0.5 Å resolution) for four Be stars, *viz.*  $\gamma$  Cas,  $\phi$  Per,  $\psi$  Per and  $\zeta$  Tau, were presented and discussed in terms of a stellar wind model. The data were obtained by the author using the University of Arizona Digicon spectropolarimeter.