

leads to some specific fundamental properties of solar and stellar atmospheres.

Equation (1) has discrete solutions, implying the existence of the structural hierarchy, with definite characteristics for the density, velocity, magnetic field, etc. As a result, "strange" phenomena take place in the solar and stellar atmospheres, for example: Magnetization, non-balancing of the magnetic fluxes in N and S polarities, surprising fast dynamics of the active phenomena, the non-classical values of electro and conductivity, etc.

The predominance of filamentary structures, which are well observed in the solar atmosphere, leads to the stochasticity and quasiperiodicity of motions.

I U E OBSERVATIONS OF CIRCUMSTELLAR LINES AND MASS LOSS FROM B-STAR

S.P. Tarafdar, K.S. Krishna Swamy and M.S. Vardya

Tata Institute of Fundamental Research

Homi Bhabha Road, Bombay 400 005, India

Abstract

The circumstellar lines due to A $^1\Pi - X^1\Sigma$ transition of CO has been identified for the first time in the spectra of an early type star. The spectrum, taken from the International Ultraviolet Explorer between 1150 - 1900 Å, of 9 Cep, a B2Ib star with $E(B-V) = 0.47$, shows not only the interstellar absorption lines of CO but also absorption features shifted towards short wavelength relative to the interstellar lines. The amount of shifts towards short wavelength from the 1 - 0, 2 - 0, 3 - 0, 4 - 0, & 6 - 0 interstellar absorption bands of CO has been found to be fairly close and corresponds to a velocity of 450 km sec⁻¹. All attempts to identify these set of lines in a consistent way with atomic or ionic lines have yielded essentially negative results. This has led us to tentatively identify these lines due to circumstellar CO around 9 Cep. An estimate of rate of mass loss from the circumstellar CO-column density leads to a value of $\dot{m} \approx 10^{-11} M_{\odot} \text{ yr}^{-1}$.