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lue of the Balmer decrement depends on the details of the temperature structure in the upper chromosphere (where most of Hβ forms) and in the envelope (where Hα forms). (3) Spherically symmetric models produce excessive flux in Mg II k as compared to observations. The hypothesis of sphericity of the wind may be responsible for the discrepancy. (4) The resonance lines of Ca II are formed primarily in the chromosphere. (5) The Balmer jump is generally in emission except for models with the lowest temperatures and mass loss rates. (6) Mass loss rates approaching 10^{-7} $M_\odot$ yr^{-1} are required to produce blueshifted Na I absorption, in agreement with Natta *et al.* (1989). (7) Na I in emisssion can be produced in hot chromospheres (T $\approx$ 7000 K) or in hot (T $\approx$ 10000 K), high mass loss rates $\dot{M} \approx 10^{-7}$ $M_\odot$ yr^{-1} envelopes.

[O I] IN THE ENVELOPES OF T TAURI STARS

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We determine the range of physical parameters of the envelope of T Tauri stars that would produce fluxes similar to the observed fluxes of the [O I] forbidden lines. We assume that the envelope is spherically symmetric, isothermal, with constant velocity, and that it connects smoothly to an inner region similar to the MHD wind models of Hartmann, Calvet, Avrett, and Loeser, (1989, *Ap. J.*, submitted). The photosphere of the star is described by T_{eff} = 4 500 K, M = 1 $M_\odot$, and R = 3 $R_\odot$. Mass loss rates and gas temperatures are free parameters. Hydrogen ionization is supposed to occur from n = 2, as in Hartmann, and Avrett, (1984, *Ap. J.*, **284**, 238), and Natta, Giovanardi, and Palla (1988, *Ap. J.*, **332**, 921. The Lyman α line is taken to be optically thick. The radiation field for the n = 2 level is characterized by the temperature of the radius where the Balmer continuum becomes optically thick. Radiative ionization and charge exchange reactions with hydrogen are included in calculating the ionization of oxygen. We find that, for the range of temperatures considered, forbidden line fluxes are good indicators of the mass loss rate. We also find that the ratio F(5557)/(F(6300) + F(6363)) is a good indicator of the temperature of the envelope. Comparison of observed fluxes with theoretical predictions indicates that stars with [O I] significantly in emission have mass loss rates of the order of 10^{-7} $M_\odot$ yr^{-1} and envelope temperatures between 6 000 and 10 000 K.

A KINEMATIC AND COMPOSITIONAL ANALYSIS OF THE WIND-BLOWN SHELL NGC 6888

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We present a quantitative model describing the morphology and physical processes taking place in NGC 6888, a 'wind blown 'type (Chu 1981, *Ap. J.*, **249**, 195), large (18.0' × 11.9' = 7.6 × 5.0 pc), high surface brightness and close (1.4 kpc) shell nebula around the WN6 star HD 192163 (M_V = −4.4).

CCD imagery of NGC 6888 using the Palomar 1.5–m telescope and focal reduction system (equivalent f/1.66, 1.19"/pixel, 16' square field) in the most prominent emission lines Hα, Hβ, [N II], [O III] and [S II] were obtained on August 1986, July 1987 and July 1988. This high resolution imagery (after reduction and calibration), revealed the presence of at least three distinctly different physical phenomena occurring in this object: 1) strong [O III] filaments bounding the perimeter of the nebula indicative of shocks expanding into the surrounding ISM; 2) N, H and possibly He enriched (likely stellar ejected) material in the NE, W and SW lobes; and 3) relatively normal composition material in the NW and SE directions from the WN star within the [O III] filament bounded areas.

The spatial variations in temperatures, densities, composition and ionization in NGC 6888 thus revealed by the imagery were further probed using deep spectrophotometry of the brightest knots and filaments in July and September 1988, using the KPNO No. 2 0.9-m telescope + the IRS (intensified reticon scanner).

These results collectively indicate a scenario that is a combination of several physical processes. The nebula is thought to be composed of swept up interstellar material that forms a thin skin around a thick, hot shell of stellar wind gas. The observed shell is bounded on the outside by an ionization shock. The nebula is apparently N and He enriched (suggesting a stellar origin). The spectrophotometry indicates [O III] temperatures of ~ 40000°K along the shocked filaments, and [N II] temperatures of about 9000 °K in the N and H rich knots.

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