

OBSERVATIONS OF INACTIVE PRE-MAIN-SEQUENCE STARS: ARE THEY POST-T TAURI?

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I present optical, ultraviolet, and X-ray observations of inactive pre-main sequence stars which may be post-T Tauri stars. There are three distinct types of these stars. The best studied is a group of five K7-M0 IV-V stars in the Taurus T association (Mundt *et al.* 1983). These have weak ($W_{\lambda} \sim 2-5 \text{ \AA}$) H α emission, strong Ca II H and K emission, and emission in the upper Balmer lines. Photometric rotation periods are 3-7 days (Rydgren, this meeting). The ratio of the H α emission flux to that in H and K is similar to that in dMe stars in three cases; the others have enhanced Balmer emission. One star, the only one with an IR excess, has the largest and most variable H α emission, and may well be a T Tauri star. The others appear significantly more evolved, but are not older in an absolute sense, than the T Tauri stars, and may be considered to be super-dMe stars.

The second group consists of seven G-K IV-V stars in Tau, Oph, and CrA with Ca II and H α emission with surface fluxes less than those of HD 283447 and V 410 Tau. These may be higher mass, post-T Tauri stars. The final star, BD+27°657, is a G0 III-IV near RY Tau. Optical and UV spectra show that it has strong chromospheric emission, Li absorption, and $V \sin i \sim 50 \text{ km s}^{-1}$. It does not appear to have IR excess (Rydgren, private communication). This star may be evolving into an A or early F dwarf, and represent an advanced evolutionary state of a star like SU Aur.

These stars appear distinct from the T Tauri stars chiefly in their absence of IR excesses and weak or absent H α emission. Chromospheric and coronal surface fluxes, as well as radii, ages, and rotation rates, are indistinguishable from those of the T Tauri stars. Perhaps the T Tauri phase ceases when the star dissipates its circumstellar shell, unveiling a "post-T Tauri" star.

PHOTOMETRIC AND SPECTROSCOPIC MONITORING OF T TAURI STARS AND RELATED OBJECTS AT VAN VLECK OBSERVATORY

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A program of monitoring Orion population variables with the Perkin telescope at Van Vleck Observatory will be described. Results from the first year of operation (1981-1982) have been published in *The Astrophysical Journal* (December, 1982) and will be reviewed. During this observing season we are continuing to obtain *UBVRI* and H α (30 \AA and 150 \AA) band pass data for several T Tauri stars (CO Ori, SU Aur, T Tauri, GW Ori, HH Aur, VY Tau, RY Tau, etc.) and three variable Ae stars (WW Vul, BF Ori, and UX Ori). We are also obtaining image tube spectra at 120 $\text{\AA}/\text{mm}$ of the brighter active stars SU Aur and CO Ori. Results from this year's program will be discussed.