

that we are observing a wind which is being gravitationally decelerated as it moves away from the star and is cooling by radiation and adiabatic expansion. A decelerating wind is further suggested by a relatively sharp (FWHM  $\approx 40 \text{ km s}^{-1}$ ) blueshifted absorption at  $-114 \text{ km s}^{-1}$  in the Ca II K line, which has not varied appreciably over two months. This suggests a formation distance ( $> 4 \text{ AU}$ ) considerably further from the star than for the broader "P Cygni" absorption. This all means that the present terminal wind velocity in AS 353A seems to be considerably lower than the maximum P Cygni velocities, or  $V_t \sim 100\text{--}200 \text{ km s}^{-1}$ ; a value typical of other high mass loss T-Tauri stars (Mundt 1983, *Ap. J.*, submitted). Thus, the high velocity components in the HH-objects are moving much faster than the inferred terminal velocity of the wind. This either means that the wind speed is variable or a mechanism is required which both accelerates and collimates the flow far from the star.

A more detailed discussion of these observations is published in *Ap. J. (Letters)*, 265, L71, 1983).

#### JETS FROM YOUNG STARS

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Deep CCD images in the red and in H $\alpha$  of various young stellar objects (mainly T-Tauri stars) and Herbig-Haro objects have been obtained. These observations were made in January 1983 with 2.2-m telescope on Calar Alto, Spain.

Here we report on the discovery of three new objects which are associated with jet-like emission nebulosities. These three new jets go out from a star at the position of HH 30, from DG Tau B (a faint red star near DG Tau) and from the vicinity of HL Tau. The faint star found at the position of HH 30 (by imaging with emission-line free filters) is probably a T-Tauri star as indicated by the spectrum obtained by Cohen and Schmidt (1982, *A.J.*, 86, 1228). Furthermore we confirm that a jet is emanating from the position of IRS in L1551, and report the discovery of a bright HH-knot 8 arc sec south-west to the T-Tauri star DG Tau. All these 4 jets have typical dimensions of  $2 \times 15$  arc sec on the sky which corresponds to about  $0.001 \times 0.01 \text{ pc}$  (at a distance of 150 pc). On the basis of the morphological structure of these jets and from the presence of similar cases (with known velocities of the emitting matter) it can be argued that they are probably the result of highly collimated outflows from young stars. In all 4 cases discussed here the opening angle of the jet is in the order of 5-10 degrees which requires a very efficient collimation process. However, the high collimation seems to get lost within relatively small distances ( $\sim 0.01 \text{ pc}$ ). Similar high degrees of collimation are known so far only in the case of the jet emanating from the dust globule ESO 210-6A which is connecting HH 46 and HH 47 (see e.g., Graham, 1982 in *Leiden Workshop on Southern Galactic Surveys*). These high degrees of collimation and the fact that some of these flows are already highly collimated on scales of  $0.001 \text{ pc}$  puts important constraints on any collimation process.

The region around HL Tau, HH 30 and IRS 5 is known to be associated with high velocity CO gas (see e.g., Snell and Edwards 1983, preprint). "Optical indicators" for relatively well collimated flows from sources with high velocity molecular gas are known for a few other cases (AS 353 A, HH 1, 2, HH 7-11). It may be that a large percentage of the high velocity molecular flows are driven by sources with small ( $\sim 0.01 \text{ pc}$ ) but well collimated jets.