latively late manifestation of the star formation process. This work describes the application and extension of similar techniques to investigate the cooler-coloured sources associated (presumably) with the earlier stages of star formation, and in particular a study of their geographic locations relative both to each other and to the very narrow bounds of the T Tauri distribution.

T-TAURI STARS IN TAURUS: INFRARED ANALYSIS OF THE IRAS SAMPLE

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This paper describes further development of the study of a set of IRAS-defined T Tauri stars, located within the Taurus region (taken as the area RA = 4^h to 5^h; dec = +16° to +31°), and selected from the IRAS point-source catalogue purely on the basis of their [25 m - 12 m] and [60 m - 25 m] colours. The original selection, which is described elsewhere (Harris, 1985) was based on an analysis of the IRAS colours of the known T Tauri stars within the region (found to be tightly defined, and representing blackbody temperatures between about 200 and 300 K, and 100 and 200 K, respectively), and gave the intriguing result that the extended sample, defined *purely* by these colours, adhered strongly to the geographic clustering found previously both for the known T Tauri stars and for the (presumably very much younger) 'dense core sources'.

The present work describes the further characterisation of these colour-defined sources, in particular examining their infrared luminosities and spectral behaviour and comparing both the 'new' sources with those already known to be T Tauri stars, and the 'IRAS T Tauris' with those previously known but found not to have an IRAS counterpart.

^{13}CO(J = 1-0) OBSERVATIONS OF THE FILAMENTS IN THE ρ OPH DARK CLOUD

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The ρ Oph dark cloud is located at a distance of 160 pc and is known as a site of active formation of low-mass stars. In optical photographs a central core of a ∿ 1° × 1° extent and two thin filamentary

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elongations of obscuring matter are apparent. The two filaments extend toward the east over ∿ 4° - 10°. The central core has been studied in the 2.6 mm CO lines (*e.g.*, Wilking and Lada, 1980, Ap. J. 274, 698). On the other hand, the two filaments have not yet been mapped in molecular spectra. Interestingly, optical studies revealed that polarization vectors run along these remarkable filaments, suggesting that the magnetic field plays an important role in determining the structure of the filaments.

We have been mapping the northern filament in the ρ Oph dark cloud with the 4-m millimeter-wave telescope at Nagoya since Jan. 1985. Up to now, the central core and the northern filament have been mapped in the J = 1-0 ^{13}CO line with a 6'grid spacing and a 3'beam size. The spatial coverage is ∿ 2° × 3.5°. The observational results indicate that the northern filament has a mass of ∿ 150 $M_{\odot}$. As shown in Figure 1, an IRAS source is seen toward the densest part of the filament, whose luminosity is estimated to be a few × 10 $L_{\odot}$. However, in the other position of the filament there is no IRAS source. Therefore, the star formation efficiency in the filament appears remarkably low compared to the core. We suggest that the magnetic field may be important in prohibiting contraction of molecular gas in the filament.

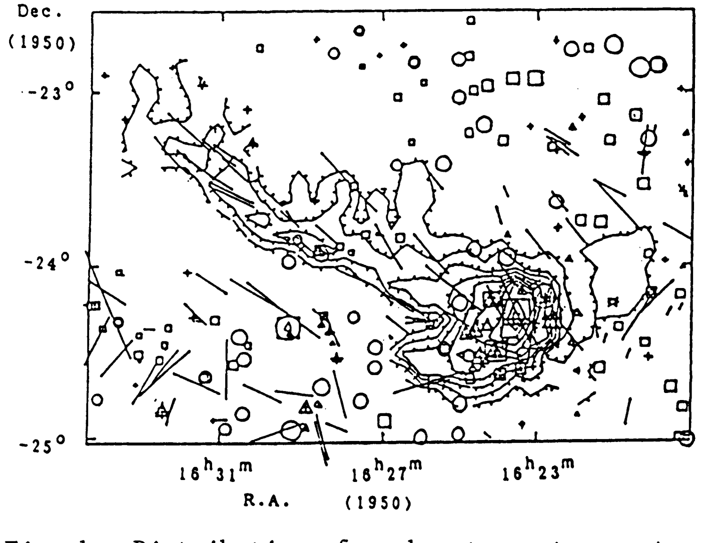

Fig. 1. Distribution of peak antenna temperature of ^{13}CO (J = 1-0). Contours are every 1.5 K. Optical polarization is shown by bars (Vrba, Strom and Strom, 1976, A.J. 81, 958), and IRAS sources are denoted by +(12 μm), Δ(25 μm), □(60 μm), and O(100 μm).

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