

MASSIVE DUST DISKS SURROUNDING HERBIG Ae/Be STARS

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I present preliminary results from a small mm/submm continuum survey, mostly photometry (1.1mm, 800 μ m, 450 μ m and 350 μ m), but also some mapping at 800 μ m of Herbig Ae/Be stars and a few peculiar stars. These observations were commenced on the 15m JCMT submillimetre telescope on Mauna Kea, Hawaii.

The sample included the following stars: HR 5999, AB Aur, R Mon, LkH $_{\alpha}$ 198, LKH $_{\alpha}$ 234, BD+40 $^{\circ}$ 4124, HD 200775, MCW 1080, R CrA, TY CrA, PV Cep, V 645 Cyg, and MWC 349. All stars were detected except HR 5999. In the R Corona Australis region it is difficult to separate the stars from the extended strong emission of the surrounding dust cloud.

If I restrict myself to stars, which have been observed at more than two wavelengths, and for which the emission is sufficiently compact, I find that the apparent β -index is ~ 1 , i.e. less extreme than for T Tauri stars (Weintraub et al., 1989, Ap.J. Lett (in press)) where $\beta < 1$. The total masses (gas and dust), deduced from the observed continuum emission, range from a few 0.1 M_{\odot} to 8 M_{\odot} for the most extreme case (LkH $_{\alpha}$ 234). Although the emission is unresolved, I argue that the emission must originate from asymmetric disk like structures surrounding the stars, because if the matter was in a shell, the stars would not be visible. Only one star, LkH $_{\alpha}$ 198, appears resolved and disk like, while LkH $_{\alpha}$ 234, which itself is unresolved, is surrounded by a large disk perpendicular to the outflow. MCW 349, appears to be associated with very little dust, most of the emission we see is probably due to free-free emission.

NEW YOUNG OBJECTS FROM THE IRAS POINT SOURCE CATALOGUE

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Three new objects have been found, when carrying out a survey of IRAS sources with colours like planetary nebulae, via low resolution spectroscopy. IRAS 14592-6311 and IRAS 07173-1733 are bright cometary nebulae, showing metal line emission very similar to V1331 Cyg (LkH $_{\alpha}$ 120), which is the prototype of a certain number of T Tauri stars. They present strong P-Cygni profiles and some other peculiar characteristics. IRAS 14592-6311 is associated with a molecular cloud at a distance of 2.9 kpc, while IRAS 07173-1733 is located at the edge of the dark cloud KHAV 201. In the case of IRAS 05506+2414, it presents a bipolar structure with Herbig-Haro emission characteristics in one of the lobes, produced by shocked gas, and is located near Orion.