

Further High-Resolution Observations of Herbig Ae Systems

Vince Mannings, Jet Propulsion Laboratory,
California Institute of Technology, MS 169-327,
4800 Oak Grove Drive, Pasadena, CA 91109

Anneila I. Sargent, Division of Physics, Mathematics
and Astronomy, California Institute of Technology,
MS 105-24, Pasadena, CA 91125

In Mannings & Sargent (1997; Paper I), we presented evidence for disks of gas and dust associated with seven Herbig Ae stars, based on high-resolution interferometric millimeter-wave observations of continuum and molecular line emission. These systems are simultaneously high-mass analogs of the approximately solar-mass T Tauri stars and the evolutionary precursors of the prototypical main-sequence debris disk sources Beta Pic, Alpha Lyr and Alpha PsA. See the review by Natta, Grinin & Mannings (2000).

We have extended the original survey to include four additional Herbig Ae systems. We have also imaged two of the sources from Paper I at higher resolution. The new results (Mannings & Sargent 1999) are combined with the results from the earlier sample to address the properties of this class of circumstellar disk. Derived disk masses are indistinguishable from the masses of T Tauri disks. It seems likely that disk masses are essentially uncorrelated with stellar mass for pre-main-sequence stars of spectral type A0 and later.

All the papers mentioned here can be downloaded from:

<http://astro.caltech.edu/~vgm>

REFERENCES

Mannings, V., & Sargent, A. I., 1997 (Paper I), "A High-Resolution Study of Gas and Dust Around Young Intermediate-Mass Stars: Evidence for Circumstellar Disks in Herbig Ae Systems", *ApJ*, 490, 792

Mannings, V., & Sargent, A. I. 1999, "High-Resolution Studies of Gas and Dust around Young Intermediate-Mass Stars. II. Observations of an Additional Sample of Herbig Ae Systems", *ApJ*, in press

Mannings, V., Koerner, D. W., & Sargent, A. I., 1997, "A Rotating Disk of Gas and Dust around a Young Counterpart to Beta Pictoris", *Nature*, 388, 555

Natta, A., Grinin, V. P., & Mannings, V. 2000, "Properties and Evolution of Disks around Pre-Main-Sequence Stars of Intermediate Mass", in *Protostars and Planets IV*, ed. V. Mannings, A. P. Boss & S. S. Russell (Tucson: University of Arizona Press), in press