Pre-Protostellar Core Properties from Far-IR Observations

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We report the results of an analysis of pre-protostellar core properties derived from the Infrared Space Observatory (ISO) observations at 100, 160, and 200 microns. We use a simple two-temperature grain model to separate the line of sight components into core and halo contributions. Where available we have combined the ISO data with ground based continuum maps at 1.3 mm. In our analysis of three cores, L1498, B133, and B68 we derive the column density distribution, mass, density profile and dust temperature. The derived core properties are compared with various theoretical models of static and dynamic cores, including the effects of magnetic fields. Comparison with molecular line maps allows us to derive the degree of depletion onto grains, something we find to be quite prominent in these sources. We also discuss the role of FIRST in extending this approach for understanding these prestellar cores.

This work was supported at the Jet Propulsion Laboratory, Caltech under research grants from the National Aeronautics and Space Administration (NASA).