

## NEW YOUNG STELLAR AGGREGATES IN PERSEUS AS REVEALED BY THE SPITZER/MIPS C2D LEGACY PROGRAM

L. M. Rebull, *Spitzer Science Center/Jet Propulsion Laboratory/Caltech, Pasadena, CA, 91125 USA*, K. R. Stapelfeldt, *Jet Propulsion Laboratory, Pasadena, CA, USA*, and the c2d Team

We have mapped 10.6 square degrees of the Perseus molecular cloud at 24, 70, and 160 microns with the Spitzer Space Telescope Multiband Imaging Photometer for Spitzer (MIPS). Amongst many interesting things in this map (discussed in Rebull et al. 2007, *ApJS*, in press), the intercluster region (outside of NGC 1333 and IC 348) contains several tightly clumped (within  $\sim 0.1$  pc) young stellar aggregates which exhibit a wide variety of infrared spectral energy distributions (SEDs) characteristic of different circumstellar environments. An example can be found in Per 6, seen in Figure 1 whose SEDs can be found in Figure 2. One possible explanation is a significant age spread among the aggregate members. Alternatively, if the members all formed at roughly the same time, then remarkably rapid circumstellar evolution would be required to produce Class I and Class III sources within close proximity to one another. Understanding the star-disk interaction region in these young stars may be crucial to understanding the wide range of SEDs that we find.

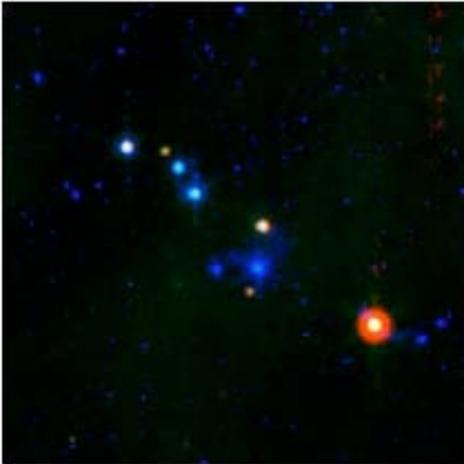


Figure 1: Three-color image of Per 6, one of the new aggregates of objects bright at MIPS wavelengths. (IRAC-4.5 micron is blue, MIPS-24 is green, and MIPS-70 is red, all log scale.) The brightest objects are numbered from 1 to 10 in increasing RA (right to left); north is to the upper left. Extended emission can be seen around source #1 in IRAC.

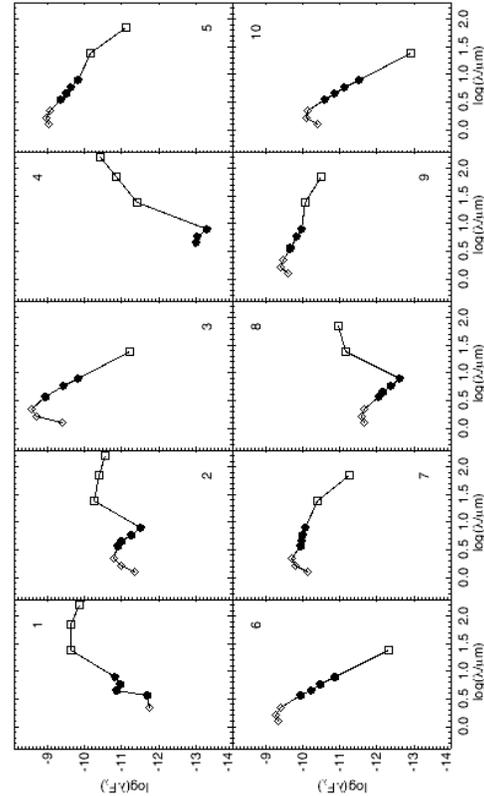


Figure 2. Spectral energy distributions (SEDs) for the 10 components of the new Per 6 aggregate. Diamonds are 2MASS detections, circles are IRAC detections, and squares are MIPS detections. The units of the y-axis are  $\text{ergs}/\text{cm}^2/\text{s}$ ; it is plotted against wavelength in microns. The objects here have diverse SEDs; some objects (like #6) are photospheres, some (like #2) clearly have circumstellar disks, and some objects (like #1) are deeply embedded. There is also a millimeter continuum core here in this region, undetected by Spitzer.