[PIM-01] The Submillimetre Common-User Bolometer Array (SCUBA) Observations of 17 Starless Cores

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The inward motions of starless cores are important process to understanding the formation of stars. It has been thought that such motions would make starless cores to be denser, which may result in some change in their density structures. In order to test this idea, we performed continuum observations toward 17 starless cores "with" and "without" spectral infall asymmetry with James Clerk Maxwell Telescope (JCMT) SCUBA in 450 and 850 micron. All of the observed 11 cores with infall asymmetry were detected in 850 micron, while three of them were detected in 450 micron. Five of the 6 cores without infall asymmetry were detected in 850 micron, while two of them were detected in 450 micron. We find that the peak fluxes of the cores are mostly between 50-150 mJy/beam and the cores with infall asymmetry tend to be brighter than the cores without infall asymmetry. We also present some results of Bonnor-Ebert sphere modelling for the observed density profiles of all the cores to test criticality of the cores and its relation with the inward motions of the cores, and discuss its implication.

[PIM-02] Studies of HI Gas Clouds and Dusty Cores in the Large Magellanic Cloud

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We study the characteristics of the HI clouds and filaments and search for the corresponding dusty cores in the Large Magellanic Cloud using the Australia Telescope compact Array (ATCA) + Parkes Multi-Beam HI single-dish Survey and MIPS observations at 24, 70 and 160μm with the Spitzer Space Telescope in collaboration with the SAGE team. We trace the dust temperature of hot dust cores associated with the HI clouds and filaments by applying the radiative transfer model and examine the dense dust clumpy structures corresponding to Jean's length, i.e. thermal fragmentation of the dense filamentary material. We also investigate the mass spectrum of dust cores and clouds with power law and perform a direct comparison of observational results to the other studies by dust continuum emission from the massive star forming regions.