

[IM-03] **HCN(J=1-0) Mapping Observations of Starless Cores**

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We present a kinematic study on the starless cores to investigate the inward motions of low mass star formation regions. We have undertaken radio mapping observation of seven infall candidates in HCN(J=1-0) molecular lines. The NRAO 12m telescope and the IRAM 30m telescope were used. We classified L1544, L1552, L1689B, L694-2, and L1197 as blue excess sources. The sizes of infall asymmetry regions showing blue excess is found to lie between 0.06 and 0.1 pc in radius. L1521F and L183 were classified as mixed excess. The integrated intensity distributions present that HCN is less depleted than CS in the central region of cores. A Monte Carlo simulation of the radiative transfer for the HCN hyperfine line by Lee et al. (2007) showed that the simulated peak infall velocities are 0.28 km/s and 0.2 km/s for L694-2 and L1197, respectively, which are in good agreements with the values derived from the observations. This results suggests that some of starless cores collapse with velocity significantly higher than expected from the quasi-state core collapse model.

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[IM-04] **A Star-Forming Infrared Loop around a Crab-like Supernova Remnant**

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We have been doing infrared studies of supernova remnants (SNRs) using the AKARI satellite. We have observed about twenty SNRs including Crab-like SNRs, young core-collapse SNRs, SNRs interacting with molecular clouds, etc. In this talk, I will report the discovery of a star-forming loop around a young, Crab-like supernova remnant. The loop consists of a dozen young stellar objects (YSOs) embedded in a ring-like diffuse emission. The YSOs are bright in mid infrared and have unique Spitzer [8]-[24] colors. I will discuss the nature of YSOs and their relation to the SNR.