

[☞IM-13] Chemical Differentiation of CS and N₂H⁺ in Starless Cores

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We present preliminary results on the chemical differentiation of two dense gas tracers CS and N₂H⁺ in five ‘evolved’ starless cores, L1544, L1552, L1689B, L694-2 and L1197, using our mapping observations in C³⁴S(J=2-1) and N₂H⁺(J=1-0) with Nobeyama 45-m telescope.

We compared the intensity maps of two molecular lines with 850 μm continuum data which precisely trace the density distribution of the dense cores, finding that all of our targets show the central depletion holes in CS distribution, but the similar distribution in N₂H⁺ to the one in dust continuum. Our data confirm the claim that CS molecule generally deplete out in the central region in starless cores, while N₂H⁺ keep abundant as they get evolved. The detailed quantitative analysis on CS depletion in the dense cores, for example, the size of CS depletion area and radial (or gas density) dependence of CS depletion, is underway and will be presented in the meeting.

[☞IM-14] The Large Magellanic Cloud Polarization Source Catalog : Characteristics of Polarization in The Observed Fields

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We compiled near-infrared photometric and polarimetric catalog of sources in ~3 9'x69' size field in the eastern side of the Large Magellanic Cloud (LMC). This catalog lists all 1969 sources which are brighter than 14 mag and which signal to noise ratio of degree of polarization is greater than 3 in the *J*, *H*, and *K*s bands. The photometric and polarimetric data were simultaneously obtained in *J*, *H*, and *K*s bands using SIRPOL, an imaging polarimeter of the InfraRed Survey Facility (IRSF), in 2008 December and 2011 December. We classified the objects into several groups based on their locations on the color-magnitude diagram and compared their general properties of polarization. We measured wavelength dependence of this field to verify interstellar polarization of the LMC which occurred from the dichroic extinction. We also discuss the polarization structure in this field with the results from molecular cloud studies.