Ices and dust around Protostars in the Magellanic Clouds

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Recent advances in infrared observational instruments enable us to detect spectral information of protostars in extragalaxies. The Large and Small Magellanic Clouds are the satellite galaxies of the Milky Way, and they possess a unique metal-poor environment. To understand the diversity of materials in the universe, it is of great interest to investigate how the differences in galactic environments (e.g., metallicity, radiation field, etc.) affect the chemical properties of circumstellar materials.

Infrared spectra of embedded protostars show a variety of absorption bands arising from ices such as water or carbon dioxide. Ices are believed to be an important reservoir of heavy elements and molecules in low-temperature and high-density environment. In this presentation, I will introduce the results of infrared spectral analyses of ice absorption bands detected toward Magellanic Cloud's protostars, based on infrared data taken by AKARI, Spitzer, and Gemini South telescope. I will discuss how the properties (e.g., molecular abundance, column density) of ices around protostars vary depending on the metallicity of the parent galaxy.