[포IM-09] OH Emission toward Embedded YSOs

Hyeong-Sik Yun[1], Jeong-Eun Lee[1], Hyerin Je[1], Seokho Lee[1], Evans, Neal J., II[2], Wampfler, S. F.[3,4] and DIGIT team
[1]School of space research, Kyung Hee University, Korea. [2]Department of Astronomy, The University of Texas at Austin, USA. [3]Institute for Astronomy, ETH Zurich, Switzerland. [4]Centre for Star and Planet Formation, Natural History Museum of Denmark, University of Copenhagen, Denmark.

High energy photons and mechanical energy produced by the process of star formation result in copious FIR molecular and atomic lines, which are important coolants of the system. Photons thermally or mechanically induced could dissociate water in the dense envelope to change relative abundances among the species O, OH, and H2O. Here we analyze OH emission lines toward embedded young stellar objects (YSOs) observed as part of the Herschel open time key program, 'Dust, Ice, and Gas In Time (DIGIT)' in order to study the physical conditions of associated gas and the energy budget loaded on the OH line emission. According to our analysis of the Herschel/PACS spectra, OH emission peaks at the central spaxel in most of sources, but several sources show spatially extended emission structures. In the extended emission sources, the distribution of OH emission is correlated with that of [OI] emission and extended along the outflow directions. Considering the diversity of source properties, ratios between detected OH lines are relatively constant among sources. In addition, each OH line has strong correlation with bolometric luminosity. For detail analyses with rotation diagram and non-LTE LVG model, we present the results from GSS30-IRS1 and Elias29.

[포IM-10] The Effects of Nitrogen Abundance Variations on the Evolutionary Tracks of Low-Mass Stars with Various Metallicities and Helium Contents

Chongsam Na[1,2], Sang-Il Han[1,2], Yong-Cheol Kim[1], and Young-Wook Lee[1,2]
[1]Department of Astronomy, Yonsei University,
[2]Center for Galaxy Evolution Research

As more spectroscopic observations accumulate, it becomes evident that there are variations in light elements, such as C, N, O, and Na, between the sub-populations in most globular clusters (GC) in the Milky Way. We have constructed a new set of isochrones and horizontal branch evolutionary tracks with enhanced Nitrogen and depleted Oxygen to study their effects on the evolution of stars in GCs. From these results, we found that their effects on the evolution in color-magnitude diagram are significant in determining the age of GCs. In order to reflect these effects in the construction of population models for GCs, we have expanded the parameter space of Yonsei-Yale Isochrones and HB evolutionary tracks by introducing abundance enhancements of N for various global metal abundances and helium contents. In this paper, we will present our preliminary results from these calculations.