

**[☞IM-08] PDR Model : Test and fit observed data Obtained
by Herschel PACS**

Hyeong-Sik Yun, Jeong-Eun Lee, Seokho Lee
Department of Astronomy and Space Science, Kyung Hee University

We utilized a 2-D PDR code developed by Lee et al. (2014) to explore the observed OH line fluxes toward embedded protostars. This 2-D PDR code combines self-consistently the FUV radiative transfer, gas-energetics, chemistry, and line radiative transfer. We modeled two sources, GSS30-IRS1 and Elias29, which show conspicuous line emission in the Herschel/PACS wavelength range. The physical and chemical structure for a given embedded source was derived by fitting the PACS CO line fluxes. After exploring various parameter spaces, we conclude that IR-pumping effect either by the central IR source and dust in-situ is insignificant for OH emission, unlike previous studies. We here present a possible solution for the observed OH fluxes, which require a high OH abundance and temperature at the inner-part of the UV heated cavity wall.

[☞IM-09] Far-ultraviolet study of the local supershell GSH 006-15+7

Young-Soo Jo^{1,2}, Kyoung-Wook Min¹, Kwang-Il Seon²
¹*Korea Advanced Institute of Science and Technology (KAIST),*
²*Korea Astronomy and Space Science Institute (KASI)*

We have analyzed the archival data of far ultraviolet (FUV) observations made for the region of GSH 006-15+7, a large shell-like structure discovered by Moss et al. (2012) from the H I velocity maps. FUV emission is seen enhanced in the lower supershell region and is believed to originate from dust scattering of interstellar photons. A corresponding Monte Carlo simulation indicates that the supershell is located at a distance of 1250^{+750}_{-500} pc, similar to the previous estimation of 1.5 ± 0.5 kpc based on kinematic considerations. The spectrum obtained for the lower supershell exhibits molecular hydrogen fluorescence lines: a simulation model for this candidate photodissociation region (PDR) yields a rather high total hydrogen density of $n_H \sim 30 \text{ cm}^{-3}$ with H₂ column density of $N(\text{H}_2) = 10^{17.5 - 20.0} \text{ cm}^{-2}$. It is argued that the region is in a transition stage from a warm to a cool neutral phase. Strong C IV emission is also seen in the spectrum, but it is not believed to be associated with the supershell as the corresponding spectral map shows a broad region of enhancement both inside and outside the supershell.