

### [☞IM-07] Far-ultraviolet Observations of the Taurus Molecular Cloud(TMC) Region with FIMS

Tae-Ho Lim<sup>1</sup>, Kyung-Wook Min<sup>1</sup>, Jae-Woo Park<sup>1</sup>, Il-Joong Kim<sup>1</sup>, Sung-Joon Park<sup>1</sup>, Yeo-Myung Lim<sup>1</sup>, Dae-Hee Lee<sup>2</sup>, Kwang-Il Seon<sup>2</sup>

<sup>1</sup>*Korea Advanced Institute of Science and Technology,*

<sup>2</sup>*Korea Astronomy and Space Science Institute*

We present the H<sub>2</sub> fluorescent emission map in the far-ultraviolet (FUV) waveband. The map reveals the spatial distribution of H<sub>2</sub> molecules around the Taurus Molecular Cloud (TMC), which is known for one of the nearby star-forming region.

The physical properties were reported for the cloud's core and the halo from the previous FUV research. The contour map of CO emission is overplotted to our H<sub>2</sub> emission map to visualize the spatial distribution of the cloud.

The H<sub>2</sub> intensity is enhanced toward cloud's halo while the significant portion of emission seems to be blocked toward cloud's core. With the help of model expectation, the estimated intensity can be converted with the hydrogen density for these regions.

The data were taken from the Far-Ultraviolet Imaging Spectrograph (FIMS) and the model was adopted from the CLOUD, a plane-parallel H<sub>2</sub> model program for photodissociation region(PDR).

---

### [☞IM-08] I-GALFA: The Inner-Galaxy ALFA Low-Latitude HI Survey

Bon-Chul Koo<sup>1</sup>, Steven J. Gibson<sup>2,3</sup>, Ji-hyun Kang<sup>1,2</sup>, Kevin A. Douglas<sup>4,5</sup>,  
Geumsook Park<sup>1</sup>, Joshua E. G. Peek<sup>6,4</sup>, Eric J. Korpela<sup>6,4</sup>,

Carl E. Heiles<sup>6</sup>, Thomas M. Bania<sup>7</sup>

<sup>1</sup>*Seoul National University,* <sup>2</sup>*NAIC, Arecibo Observatory,*

<sup>3</sup>*Western Kentucky University,* <sup>4</sup>*Space Science Laboratory, UC Berkeley,*

<sup>5</sup>*University of Exeter,* <sup>6</sup>*University of California, Berkeley,* <sup>7</sup>*Boston University*

The I-GALFA survey is mapping HI 21 cm emission in the inner parts of our Milky Way Galaxy using the Arecibo L-band Feed Array (ALFA), the 7-beam receiver installed at the Arecibo 305-m telescope. I-GALFA will produce fully sampled maps of the area within 10 degrees of the Galactic plane from  $l=30$  to  $80$  deg with a 3.4-arcmin beam and 0.184 km/s channels covering an LSR velocity range of  $-700$  to  $+700$  km/s. Its anticipated full-resolution, empty-field noise is  $T_{\text{rms}} = 0.25$  K. I-GALFA complements the large synthesis array surveys with higher resolution and less sensitivity and latitude coverage, and also complements other single-dish surveys with more sky coverage and lower angular resolution. The survey started in May 2008 and will finish in September 2009. Among I-GALFA's targets of interest are cold atomic gas in and outside star-forming molecular clouds, faint high-velocity HI emission associated with old, hidden supernovae, shells and chimneys produced by star formation and disk-halo energetics, and stochastic filamentary structure from turbulent energy cascades and magnetic fields. We will present summary images from the survey and a selection of early scientific results.