[IM14] Spitzer IRAC Observations of CO J=4-3 High-Velocity Cloud in the Large Magellanic Cloud

Sungeun Kim[1], HakSub Kim[1,2]
[1]*ARCSEC,* [2]*Yonsei University*

We present the results of Spitzer IRAC Observations of the X-ray bright giant shell complex 30 Doradus in the Large Magellanic Cloud (LMC). This is the one of the largest HII complexes in the Local Group. We compare the CO 2-1 observations taken with the Antarctic Submillimeter Telescope and Remote Observatory (AST/RO) against previously taken CO 4-3 observations and analyze the spatial distribution of young stellar objects (YSOs) within the cloud using the Spitzer IRAC observations of the 30 Doradus complex. Both peaks of CO 2-1 and 4-3 emitting clouds coincide with the densest region of the filaments where multiple shells are colliding. We find that the YSOs are clustered in the southern ridge of the warm and dense molecular gas clouds traced by CO 4-3, indicating a filamentary structure of star formation throughout the 30 Doradus. We also find that Class I YSOs candidates are likely to be associated with a high-velocity component of CO 4-3 emitting clouds. This is a bona fide place where the triggered star formation had happened and newly formed stars may have produced such a high-velocity outflow interacting with the surrounding molecular material.

[IM15] Star Forming Activities in the R CrA Molecular Cloud Core

Minho Choi[1], Chul-Sung Choi[1]
[1]*Korea Astronomy and Space Science Institute*

The R CrA region is the most active site of star formation in the Corona Australis molecular cloud. We observed the R CrA region in the radio continuum (3.5/6.2 cm) with high angular resolutions (0.6/1.7 arcsec) using the Very Large Array. Several young stellar objects were detected. In most cases, the spectra are flat, suggesting that the radio emission is mostly free-free. IRS 7A was resolved into two sources, and the brighter one is associated with the X-ray source, which implies that the X-ray emission comes from shocked gas related with outflow. IRS 7B shows a bipolar morphology, suggesting that the radio emission comes from a thermal radio jet. A comparison with Chandra X-ray images shows that the brighter radio source is closely associated with the X-ray source. However, the XMM-Newton observations indicated that there are two X-ray components. A possible model is that the hard variable X-ray emission originates from the magnetic activity around the protostar, while the soft constant X-ray emission originates from plasma heated by collision of a steady jet with ambient gas. We also discuss other radio sources: B 9, SMM 1A, WMB 55, and IRS 5.