[구ST-05] Sejong Open cluster Survey. II. The star forming region IC 1848 (W5)

Beomdu Lim[1],Hwan kyung Sung[1], Rivkat Karimov[2], Mansur Ibrahimov[2]
[1] *Department of Astronomy and Space Science, Sejong University, Seoul, Korea*
[2] *Ulugh Beg Astronomical Institute, 33 Astronomical Street, Tashkent 700052, Uzbekistan*

UBVI and Hα CCD photometry of IC 1848, one of active star-forming regions in Cas OB6, is carried out as a part of Sejong Open cluster Survey (SOS) project. An OB association is an ideal laboratory for studying the triggered star formation and star formation history. Our purposes are to provide deep photometric data up to 21 mag in V and physical parameters of IC 1848. We classify 79 early-type stars and 186 pre-main sequence (PMS) stars as being the members of the cluster using photometric criteria. The IR excess emission PMS stars by Koenig et al. (2008) are also included as members of IC 1848. Total number of members is 414. We derive the interstellar reddening (<E(B-V)>=0.659±0.058 mag), reddening law (R_V =4.0±0.1), distance modulus (V_0-M_V = 12.0±0.1 mag) using the early-type members of IC 1848. We also determine the age of the cluster (3.5±1.5 Myr) by placing the theoretical isochrones on the HR diagram.

[초ST-06] Sustained Nuclear Star Formation and the Growth of a Nuclear Bulge

Sungsoo S. Kim
Kyung Hee University, Dept. of Astronomy & Space Science

Hydrodynamic simulations of gas clouds in the central hundred parsecs region of the Milky Way that is modeled with a three-dimensional bar potential are presented. Our simulations consider realistic gas cooling and heating, star formation, and supernova feedback. A ring of dense gas clouds forms as a result of X_1-X_2 orbit transfer, and our potential model results in a ring radius of ~200 pc, which coincides with the extraordinary reservoir of dense molecular clouds in the inner bulge, the Central Molecular Zone (CMZ). The gas clouds accumulated in the CMZ can reach high enough densities to form stars, and with an appropriate choice of simulation parameters, we successfully reproduce the observed gas mass and the star formation rate (SFR) in the CMZ, ~2×10^7 $M_\odot$ and ~0.1 $M_\odot$/yr. Star formation in our simulations takes place mostly in the outermost X_2 orbits, and the SFR per unit surface area outside the CMZ is much lower. These facts suggest that the inner Galactic bulge may harbor a mild version of the nuclear star-forming rings seen in some external disk galaxies. We also find that the stellar population resulting from sustained star formation in the CMZ would be enlogated perpendicularly to the main bar, and this "inner bar" can migrate the gas in the CMZ further down to the central parsecs region.