[박ST-05] Broadband Photometric Study of Two Open Clusters: Westerlund 1 and IC 1848

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Open clusters consisting of a co-spatial and coeval population with a similar chemical composition are a superb astrophysical test bed in both stellar and galactic astronomy. We introduce not only several scientific issues relating to these objects but also comprehensive studies of the two young open clusters Westerlund 1 and IC 1848 formed in extremely different star-forming conditions. Westerlund 1 is known as the most massive starburst cluster in the Galaxy. Located in the Scutum-Centaurus spiral arm, the cluster is relatively close to the Galactic Center. The apparent surface density is very high. On the other hand, IC 1848 is a core cluster within the large-scale star-forming region W5 lying in the Perseus arm. Unlike Westerlund 1, IC 1848 with a putatively low metallicity exhibits a low surface density. We present the fundamental parameters of those young clusters, such as reddening, distance, and age, obtained from the broadband photometric analysis. The stellar initial mass function (IMF) of the clusters is used to investigate the effects of the different star-forming conditions on the star formation activity. With the results of previous studies for several young open clusters, our preliminary results support a possibility that star formation activity may be affected by the environmental factors or the initial condition of natal clouds. In addition, we shortly discuss the age scale and spread of pre-main sequence stars to understand the formation processes of star clusters.

[포ST-06] Raman Scattered Ne VIIλ4881 in the Symbiotic Star V1016 Cygni

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We present the two high resolution spectra of the symbiotic star V1016 Cygni obtained with the Bohyunsan Optical Echelle Spectrograph in 2003 and 2005, from which we note the existence of the broad emission feature at 4881 Å. We propose that this broad feature is formed from Raman scattering of Ne VIIλ973 by atomic hydrogen. Thus far, the detection of Raman scattered lines by atomic hydrogen is limited to O VIλλ1032, 1038 and He IIλλ940, 972 and 1025. We perform Monte Carlo simulations to fit the Raman scattered Ne VIIλ4881 to investigate the basic spectroscopic properties concerning Ne VIIλ973.