[구GC-09] High Redshift Simulations using the GALEX Ultraviolet Images of Nearby Galaxies

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We have simulated 1034 nearby galaxies with various morphologies using diverse and high-quality GALEX (Galaxy Evolution Explorer) ultraviolet (UV) images in order to investigate the optical-band morphologies seen in HST at high redshift. In particular, we simulate Hubble Ultra Deep Field (HUDF) observations in the redshift range z ~ 0.9-3.0. Galaxy morphology plays an important role in the study of the evolution of galaxies. In this respect, the appearance of galaxies at high redshift requires images of nearby galaxies with various morphologies in the UV bandpass. Our simulation will be of important in providing the basic information needed to study the evolution of galaxies. After simulating these galaxies we measure the morphological parameters and compare them to their z ~ 0 values.

[구GC-10] Deep, wide-field global VLBI observations of the HDF-N and HFF

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We present the results of deep, wide-field global VLBI 1.4 GHz observations of the Hubble Deep Field North (HDF-N) region and the surrounding Hubble Flanking Fields (HFF). Using the global VLBI network, we attained an r.m.s. noise level of 7 microJy/beam with a 4 milliarcseconds angular resolution in the inner part of the field. In order to image out the entire HDF-N and HFF, we have employed wide-field imaging techniques, and also experimented with full-beam self-calibration. Above the 5-sigma detection level, we clearly detected 12 compact radio sources in the HDF-N and HFF region. These observations strongly suggest that these sources harbour AGN. Some of the sources show resolved structures, in particular we resolve a jet-like extension emanating from the AGN core of a distant (z = 4.4), dust-obscured starburst galaxy. Plots of q_24micron for our sample, clearly demonstrate the power of deep, high-resolution VLBI imaging in discriminating between star-formation process and AGN activity in distant, dust-obscured systems. Three of our VLBI sources are undetected by Spitzer. We also discuss possible correlations between the mid-IR, X-ray, and radio luminosities.