포스터 발 표 초 록

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[포 GC-01] Feedback-regulated star formation and escape of LyC photons from mini-haloes during reionization

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Reionisation in the early Universe is likely driven by dwarf galaxies. Using cosmological RHD simulations, we study star formation and the escape of Lyman continuum (LyC) photons from mini-haloes with Mhalo<108Msun. We find that feedback reduces star formation very efficiently in mini-haloes, resulting in the stellar mass consistent with the empirical stellar mass-to-halo mass relation derived in the local Universe. Because star formation is stochastic and dominated by a few gas clumps, the escape fraction in mini-haloes is generally determined by photo-ionization, rather than supernova explosions. We find that the photon number-weighted mean escape fraction in mini-haloes is higher (20-40%) than that in atomic-cooling haloes. Despite their high escape fractions, LyC photons from mini-haloes are of minor importance for reionization due to inefficient star formation. We confirm previous claims that stars in atomic-cooling haloes with masses $10^8 M_{sun} < M_{halo} < 10^{11} M_{sun}$ are likely to be the most important source of reionization.

[포 GC-02] The KVN single-dish survey of the MALATANG galaxies

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We present the preliminary result from our KVN single-dish observations of the MALATANG sample. The MALATANG (Mapping the dense molecular gas in the strongest star-forming Galaxies) is one of the JCMT legacy surveys on the nearest 23 IR-brightest galaxies beyond the Local Group. The goal of the MALATANG survey is to map the sample in the dense gas tracers (HCN and HCO+ J=4-3), and probe the relationships between the dense molecular gas and star formation activities. As a complementary study, we recently launched a KVN/KaVA program on the same sample, in order to measure their flux densities and parsec-scale jet/outflows in the millimeter regime, which will be greatly useful in understanding the initial conditions of the feedback process. In this work, we present the preliminary result from our pilot KVN single-dish program on a sub-sample, which will be used to select the future VLBI imaging study under plan. We investigate the KVN spectral energy distributions (SED) of the sample as a function of the power source of the luminous IR brightness of each target (starburst? AGN? or hybrid?). We also discuss the technical challenges that we experienced during our KVN observations due to the large size of the sample in the sky.

~~[포 GC-03] UGC 4703 Interacting Pair Near the Isolated Spiral Galaxy NGC 2718: A Milky Way Magellanic Cloud Analog~~

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~~We report a LMC-SMC-MW analog in an isolated spiral galaxy NGC 2718. Located at a sky-projected distance of 81 kpc from NGC 2718, we find that UGC 4703 is clearly interacting with its nearby lower-mass companion UGC 4703B, forming a bridge of stellar stream between them. Total B-band luminosity of UGC 4703 and its companion is −17.75 and −16.25 mag, respectively. The H I image revealed evidence of interaction between the dwarf galaxy pair but no extended emission, such as the Magellanic Stream. We also detected star-forming regions along the UGC 4703/4703B bridge with stellar mass exceeding 107 M⊙. While comparing the optical and H I morphology of the interacting dwarf pairs (UGC 4703-4703B and LMC-SMC), we discuss possible differences in interaction histories of these systems.~~

[포GC-04] A study AGN activity on environmental dependence in the SDSS late-type galaxies

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