[구GC-03] Young Stellar Populations in Triangulum Galaxy (M33)

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We present a comprehensive study of star-forming regions and young star clusters in M33. We use *GALEX* far-UV and near-UV imaging to detect these young stellar populations tracing recent star formation across the disk of M33. The *GALEX* imaging, combining deep sensitivity and entire coverage of the galaxy, provides a complete view of the recent star formation in M33 and its variation with environment throughout the galaxy. We discuss variation of various properties (e.g., age, mass, spatial distribution) of star-forming regions and young star clusters in M33 which allow to provide constraints of recent star formation history of this galaxy.

[구GC-04] SMBH Mass Estimate Discrepancy and Its Origin of NGC 6861

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NGC 6861 is the brightest S0 galaxy in the Telescopium group. It has unusually high central stellar velocity dispersion (~400 km/s) and clear rotation (~250 km/s). Considering the well- known M-sigma relation, this large central dispersion implies that the central supermassive black hole (SMBH) has mass comparable to the most massive black holes in the Universe. However, the mass implied by the bulge luminosity-SMBH mass relation is an order of magnitude lower than that predicted by the M-sigma relation. In order to determine the origin of this inconsistency, we obtain integral field spectroscopy using the Wide Field Spectrograph (WiFeS) on the ANU 2.3m telescope. The data are used to map the velocity and velocity dispersion fields which show that our measurements are consistent with those from the other literature. The large field of view the WiFeS observations have allows us to map the kinematics of a much greater portion of NGC 6861 and reveals that the eastern part of the galaxy has higher velocity and dispersion than the rest of halo. We discuss the origin of the unusual fast rotation and the discrepancy of two SMBH mass estimations from three plausible perspectives: 1) the interaction between subgroups of NGC 6861 and its counterpart, NGC 6868; 2) the inhibited growth of the stellar bulge by the AGN activity which leads to an underestimate the SMBH mass when using the bulge luminosity-SMBH mass relation; and 3) gas rich minor mergers that could be crucial for increasing both rotation velocity and velocity dispersion during the evolution of NGC 6861.