

cosmological simulations, and (3) multi-wavelength study of galaxies. These tests underscore the importance of combining photometric and spectroscopic surveys in observations along with cosmological simulations for exploring and understanding the structure formation.

[초 IT-05] Cosmic Web: concept, skeleton, connectivity

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In this talk I will review the concept of the Cosmic Web which is behind our understanding of the filamentary structures in the matter distribution in our Universe at large scales, how it can be described geometrically, and some of its most basic properties.

외부은하 / 은하단

[구 GC-01] A New Iron Emission Template for Active Galactic Nuclei

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Fe II emission is a prominent and ubiquitous feature in the spectra of broad-line Active Galactic Nuclei (AGN) by producing a pseudo-continuum from UV to optical with complex and strong blends of the numerous emission lines themselves, other emission lines, and continuum. Since theoretical modeling of such intricate Fe II emission is very difficult and still far from able to reproduce observed data in detail, an empirical iron emission template, derived from observations of a narrow-line Seyfert 1 galaxy, is an essential and practical tool to obtain accurate measurements of all the emission lines and continuum in AGN spectra. However, the existing iron templates, based on the single prototypical strong Fe II emitter I Zw 1, are suffering from inadequate S/N and non-simultaneous, inconsistent data with limited wavelength coverage, which consequently limit the accuracy of all the spectral measurements. To overcome the limitations and construct an improved iron template with wide spectral coverage, high-quality UV and optical spectra for the new and better identified template

galaxy, Mrk 493, were successfully obtained from our HST STIS program (GO-14744). We will show the preliminary results for multicomponent spectral decomposition of the data and template construction with application tests to various AGN spectra and comparison with previous templates.

[구 GC-02] Multiwavelength Study of an Off-nuclear Active Galactic Nucleus in NGC 5252

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We present a multiwavelength study of an ultraluminous X-ray source (ULX) in NGC 5252, which is known as a candidate for an intermediate-mass black hole. The ULX, located 22 arcsec away from the center of NGC 5252, was first discovered with the Chandra X-Ray Observatory. In the optical spectra, the strong narrow emission lines are found at the position of the ULX. It reveals that the ULX is likely associated with NGC 5252. The VLBA data of the ULX yields that the black hole mass of the ULX is smaller than 106 solar mass, inferred from the black hole fundamental plane. From the near-infrared imaging data, we find that the stellar mass associated with the ULX is smaller than ~107.9 solar mass, implying that the ULX can be a remnant of a merging dwarf. We also find that K-band luminosity of the ULX is two orders of magnitude smaller than typical active galactic nuclei at a given [OIII] luminosity. It may suggest the ULX lacks the dusty torus possibly due to the disappearance of dusty material during the recoiling process.

[구 GC-03] Radiative pressure feedback in obscured quasars

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Ricci et al. (2017, *Nature*, 549, 488) discovered a lack of high accretion rate, obscured Active Galactic Nuclei (AGN) in the hard X-ray selected Swift/BAT local AGN survey. This was interpreted as radiative pressure driven AGN feedback clearing its immediate vicinity composed of dusty gas (having an effectively low Eddington limit in the order of 0.01-0.1), and governing the level of