[구GC-03] Lick AGN Monitoring Project: reverberation time scales and black hole masses of local Seyfert galaxies

우종학[1], LAMP collaboration[2]

[1]서울대학교, [2]University of California

Lick AGN Monitoring Project is a large collaboration, designed to measure black hole masses of 12 nearby Seyfert 1 galaxies using reverberation mapping technique. Our 64-night spectroscopic monitoring campaign has been recently completed at the Lick 3-m telescope. At the same time, photometry monitoring of the same sample was carried out with four 1-m class telescopes. We detected sufficient optical variability of nine objects to measure the time lag between the continuum variations and the response of the Hbeta line emission. By combining the Hbeta lag time with the width of the Hbeta, we determined the virial masses of the central black hole in thesic ine AGNs. I will reviiss the scope of the project and recent new results.

[구GC-04] Probing the warm dark matter with the high-z quasar luminosity function

송현미, 이정훈

서울대학교 물리천문학부 천문학과

In a warm dark matter (WDM) cosmology, the first objects to form at z>=20 are one-dimensional filaments with mean length on the order of the WDM free-streaming scale. Gao & Theuns recently claimed by using high-resolution hydrodynamic simulations that the eventual collapse of these WDM filaments along their longest axes may seed the supermassive black holes that power high-z quasars. In this picture, it is supposed that the high-z quasar luminosity function should reflect how abundant the WDM filaments are in the early universe. We derive analytically the mass function of early-universe filaments with the help of the Zel'dovich approximation. Then, we determine the rate of its decrease in the mass section corresponding to the free-streaming scale of a WDM particle of mass m_\mu. Adjusting the value of m_\mu, we fit the slope of the analytic model to that of the high-z quasar luminosity function measured from the Sloan Digital Sky Survey DR3. A new WDM constraint from this feasibility study is found to be consistent with the lightest super-symmetric partner.