using redshift-invariant physical quantities.

[포 CD-02] Systematic Tests for Light-Curve Fitters and Samples in YONSEI Supernova Catalogue

Young-Lo Kim, Yijung Kang, and Young-Wook Lee
Center for Galaxy Evolution Research & Department of Astronomy, Yonsei University, Seoul 03722, Korea

The YONSEI (YOnsei Nearby Supernova Evolution Investigation) project is to investigate the luminosity evolution of Type Ia supernovae (SNe Ia) by using their early-type host galaxies. As a part of this project, we have constructed our own SN catalogue. SALT2 and MLCS2k2 light-curve fitters implemented in SNANA package are employed to analyze the light-curve data. The catalogue provides a rest-frame peak magnitude in *B*-band or distance modulus, a light-curve shape parameter, and a color or an extinction value of each SN in the redshift range from 0.01 to 1.4. In this poster, we will present our progress in the detailed systematic tests for this catalogue.

[포 CD-03] MMT Spectroscopy of Early-type Host Galaxies of Type Ia Supernovae

Yijung Kang, Young-Lo Kim, and Young-Wook Lee
Department of Astronomy and Center for Galaxy Evolution Research, Yonsei University, Seoul 03722, Korea

The origin of the well-known correlation between Hubble residual of Type Ia Supernova (SN Ia) and mass of their host galaxies is yet to be fully understood. In our first paper of our YOnsei Evolutionary Supernovae Evolutionary Investigation (YONSEI) project, we found a significant (~3.9σ) correlation between host galaxy mass (velocity dispersion) and population age from high S/N host spectra observed using LCO 2.5 m telescope. Since there is no correlation with metallicity, our result suggests that stellar population age is mainly responsible for the relation between host mass and HR. In order to explore this more directly, we have subsequently observed more sample of nearby early-type host galaxies using MMT 6.5 m telescope. In this poster presentation, we will report our progress in this project and show the preliminary results from our MMT observations.

[포 CD-04] Constraining primordial non-Gaussianity with the 3-point correlation function of the SDSS-IV eBOSS DR14 quasar sample

Peter D. Choi[1], Graziano Rossi[1], Zachary Slepian[2], Daniel Eisenstein[3], Shirley Ho[2,4], David Schlegel[2]
[1]Sejong University, [2]Lawrence Berkeley National Laboratory, [3]Harvard-Smithsonian Center for Astrophysics, [4]Carnegie Mellon University

While quasars are sparse in number density, they reside at relatively high-redshift as compared to galaxies. Hence, they are likely to be less non-linearly evolved than the galaxy population, and thus have a distribution that more closely mirrors the primordial density field. Therefore, they offer an intriguing opportunity to search for primordial non-Gaussianity (PNG). To this end, the 3-point correlation function (3PCF) is an excellent statistical tool to detect departures from Gaussianity, vanishing for a Gaussian field. In this work, we will make the first-ever measurement of the large-scale quasar 3PCF from the SDSS-IV DR14 quasar sample (spanning the largest volume to-date) to place constraints on PNG through the usual f_NL-type parametrization. This work will use the order N^2-time 3PCF algorithm of Slepian & Eisenstein (2015), with N the number of objects.

[포 CD-05] Modeling the Galaxy-Halo Connection for Large-Volume Surveys

SeungHee Lee, Dongjun Park, Graziano Rossi
Sejong University,

With large-volume surveys becoming the norm, it is increasingly important to accurately model the galaxy-halo connection and being able to create mock universes of galaxies - starting from dark matter halo catalogs - that reproduce with high-fidelity all the characteristics of a given experiment. This step is necessary, in order to safely interpret cosmological data and fully control systematic effects. We are developing a new Python-based tool which integrates several existing packages and allows one to reproduce many of the forms used to describe galaxy-halo models, ranging from halo occupation distribution (HOD) to abundance matching techniques, along with the characteristics of a given survey and the main testable observables. We are making the code parallel for high-performance parallel-architectures.