different quiescent galaxy fraction. The origin of this difference is investigated, and will be presented in the presentation.

[구 GC-12] Measuring the Environmental Quenching Timescales of Galaxy Clusters in the COSMOS field

Eunhee Ko[1], Myungshin Im[1], Seong-Kook Lee[1], Insu Paek[1] ,and Bomi Park[1]
[1]Astronomy program, Dept. of Physics & Astronomy, Seoul National University

Using 74 galaxy clusters in the COSMOS field at 0.1 < z < 1.2, we calculate the environmental quenching timescale, defined as the time required after a galaxy is accreted by a cluster for it to stop star formation. Cluster candidates are selected as the overdensities with the surface number density exceeding the 4-σ. With the "delayed-then-rapid" quenching model, we can successfully reproduce the separation of the galaxies(star-forming, intermediate, and quiescent) on the NUV-R - R-J color plane comparing with the BC03 evolutionary track. With the mass growth rate of halo mass and the ratio of categorized galaxies, we can constratin the environmental quenching timescale ~ 2Gyr at z ~ 1. We will present the result as a function of redshift and compare them with dynamical timescale and gas depletion timescale.

[구 GC-13] Mapping the Star Formation Activity of Five Jellyfish Galaxies in Massive Galaxy Clusters with GMOS/IFU

Jeong Hwan Lee[1], Myung Gyoon Lee[1], Jae Yeon Mun[2]
[1]Seoul National University,
[2]Australian National University

Ram-pressure stripping (RPS) is known as the main driver of quenching the star formation (SF) activity in cluster galaxies. However, galaxies undergoing RPS in galaxy clusters often show blue star-forming knots in their disturbed disks and tails. The existence of these “jellyfish galaxies” implies that RPS can temporarily boost the SF activity of cluster galaxies. Thus, jellyfish galaxies are very unique and interesting targets to study the influence of RPS on their SF activity, in particular with integral field spectroscopy (IFS). While there have been many IFS studies of jellyfish galaxies in low-mass clusters (e.g., the GASP survey), IFS studies of those in massive clusters have been lacking. We present an IFS study of five jellyfish galaxies in massive clusters at intermediate redshifts using the Gemini GMOS/IFU. Their star formation rates (SFRs) are estimated to be up to 15 Mo/yr in the tails and 50 Mo/yr in the disks. These SFRs are by a factor of 10 higher than those of star-forming galaxies on the main sequence in the M∗-SFR relation at similar redshifts. Our results suggest that the SF activity of jellyfish galaxies tends to be more enhanced in massive clusters than in low-mass clusters. This implies that strong RPS in massive clusters can trigger strong starbursts.

[구 GC-14] The Kaiser Rocket Effect in Cosmology

Benedict Bahr-Kalus
Korea Astronomy and Space Science Institute

The peculiar motion of the observer, if not (or only imperfectly) accounted for, is bound to induce a well-defined clustering signal in the distribution of galaxies. This spurious signal is related to the Kaiser rocket effect. We examined the amplitude of this effect and discuss possible implications for analysis and interpretation of future cosmological surveys. We found that it can in principle bias very significantly the inference of cosmological parameters, especially for primordial non-Gaussianity.

[구 GC-15] The DESI peculiar velocity survey

Christoph Saulder
Korea Astronomy and Space Science Institute

One of the most promising secondary target programmes of DESI is the peculiar velocity survey, which will notably improve the measurements of cosmology parameters in the low-redshift universe. We use the Fundamental plane and Tully-Fisher relation as distance indicators to calculate peculiar velocities for DESI. This required additional observations to obtain spectra with sufficient quality to measure the velocity dispersions in the case of the fundamental plane, and to get off-centre redshift measurements to reconstruct the rotation curve in the case of the Tully-Fisher relation. However, we devised a clever strategy for suitable target galaxies, that takes advantage of the spare fibres of DESI to gather the required additional data without causing conflicts with the main survey programmes. We provide a brief overview of the preliminary results and success rate based on the first measurements obtained during survey validation as well as an outlook on expected improvements in the $f\sigma_8$ measurements once the survey has been completed.

[구 GC-16] Cosmology with peculiar velocity

surveys

Fei Qin
Korea Astronomy and Space Science Institute

In the local Universe, the gravitational effects of mass density fluctuations exert perturbations on galaxies' redshifts on top of Hubble's Law, called 'peculiar velocities'. These peculiar velocities provide an excellent way to test the cosmological model in the nearby Universe. In this talk, we present new cosmological constraints using peculiar velocities measured with the 2MASS Tully-Fisher survey (2MTF), 6dFGS peculiar-velocity survey (6dFGSv), the Cosmicflows-3 and Cosmicflows-4TF compilation. Firstly, the dipole and the quadrupole of the peculiar velocity field, commonly named 'bulk flow' and 'shear' respectively, enable us to test whether our cosmological model accurately describes the motion of galaxies in the nearby Universe. We develop and use a new estimators that accurately preserves the error distribution of the measurements to measure these moments. In all cases, our results are consistent with the predictions of the Λ cold dark matter model. Additionally, measurements of the growth rate of structure, fσ8 in the low-redshift Universe allow us to test different gravitational models. We developed a new estimator of the "momentum" (density weighted peculiar velocity) power spectrum and use joint measurements of the galaxy density and momentum power spectra to place new constraints on the growth rate of structure from the combined 2MTF and 6dFGSv data. We recover a constraint of fσ8=0.404+0.082-0.081 at an effective redshift zeff=0.03. This measurement is also fully consistent with the expectations of General Relativity and the Λ Cold Dark Matter cosmological model.

[구 GC-17] High-resolution CMB bispectrum estimator for future surveys

Wuhyun Sohn (손우현)
Korea Astronomy and Space Science Institute (한국천문연구원)

The Cosmic Microwave Background (CMB) contains a wealth of information about the perturbations in the early universe. Its bispectrum, the Fourier counterpart of three-point correlation functions, is a direct probe of primordial non-Gaussianity predicted by many physically well motivated inflation models. Motivated by the substantial improvement in sensitivity expected from future CMB surveys, we developed a novel bispectrum estimator capable of handling such high-resolution data. Our code, named CMB-BEst, utilises a set of separable basis functions to constrain a wide variety of models simultaneously. Flexibility in the choice of basis enables targeted analysis on highly oscillatory inflation models, which are previously unconstrained due to the numerical and computational challenges involved. We present the results of our thorough validation tests, both internal and against conventional approaches. We provide a proof-of-concept example with Planck satellite data and sketch out the road ahead.

[구 GC-18] Identifying Lensed Quasars and measuring their Time-Delays in Unresolved Systems

Satadru Bag
Korea Astronomy and Space Science Institute

Detecting lensed quasar systems and estimating their time delays using the unresolved joint light curves can be the next frontier among the cosmological probes in the near future. One can get the independent measurement of the Hubble constant from the time delays but without requiring the systems to be resolved a priori followed by monitoring the image light curves using high-resolution telescopes for years. In this work, we propose a novel technique that can identify lensed quasars only using the observed unresolved light curves and without assuming a template or any prior information. Following a set of conservative selection criteria that gives zero false-positive outcome, we can accurately estimate the time delay for almost all the lensed systems with marginal noise in the data. For the case of noisy data, our approach can still correctly identify a substantial number of lensed systems with high certainty and measure the time delay accurately.

[구 GC-19] Excursion-Set Modeling of the Splashback Mass Function and its Cosmological Usefulness (Splashback 질량함수의 Excursion-Set Modeling과 우주론적 유용성)

Suho Ryu (유수호), Jounghun Lee (이정훈)
Seoul National University (서울대학교)

일반화된 excursion set 이론과 자기 유사 구형 유입 (Self-similar spherical infall) 모형에 기반하여 Splashback 질량함수에 대한 해석적 단일 매개변수 모델을 착안하였다. Planck/WMAP7 관측결과를 토대로 구축된 EREBOS N-Body 시뮬레이션의 수치적 결과의 해석적 모델을 이용한 회귀분석을 통해 단일 매개변수이자 Splashback 경계의 확산적 특성을 수치화하는 확산계수 (Diffusion Coefficient)의 추정치를 계산하였다. 계산된