Session:	**[B3C-4] S4 : Galaxies, AGN and Cosmology**
Date:	August 20, 2014 (Wednesday)
Time:	16:00~17:30
Room:	Room D (Room 105~106)
Chair:	Tzu-Ching Chang (Academia Sinica Institute of Astronomy and Astrophysics)

[B3C-4-1] **16:00~16:20**

[Invited] FastSound: Probing the Origin of Cosmic Acceleration by Galaxy Clustering at z ~ 1.3 with Subaru/FMOS

Tomonori Totani (The University of Tokyo, Japan)

I will introduce the FastSound project, a galaxy redshift survey for the purpose of cosmology using Subaru/FMOS. The survey covers ~30 deg^2 in total in the redshift range of z=1.2-1.5 by detecting H alpha emission lines in near-infrared, with an expected galaxy number of ~5,000.
The main science goal is to detect the redshift space distortion effect for the first time at this redshift range, and measure the structure growth rate of the universe, which is sensitive to the gravity theory and hence the mystery of the cosmic acceleration.

[B3C-4-2] **16:20~16:35**

Infrared Medium Deep Survey

Myungshin Im (Seoul National University, Korea), Soojong Pak, Jae-Woo Kim, Seong-Kook J. Lee, Marios Karouzos, Ji Hoon Kim, Won-Kee Park, Yiseul Jeon, Minhee Hyun, Changsu Choi, Yongmin Yoon, Yongjung Kim, Hyunsung Jun, Dohyeong Kim, Yoon Chan Taak, Gieson Baek, Hyeongju Jeong, Juhee Lim, Eunbin Kim, Nahyun Choi, Hye-In Lee, K. M. Bae, and Seunghyuk Chang

We describe the survey strategy, the current status and the early science results from the Infrared Medium-deep Survey (IMS). IMS is a near-infrared imaging survey using the United Kingdom Infared Telescope (UKIRT) and CQUEAN instrument on the 2.1m telescope at the McDonald observatory. IMS is aimed to understand the formation and the evolution of quasars and galaxies at high redshift, and study transient and time-variable objects such as gamma-ray bursts, supernovae, and young stellar objects. The survey uses a multi-tier structure, with deep imaging of 100 deg2 using UKIRT to the depth of 23 AB mag (5-sigma) in J and Y-band, and shallower imaging of interesting sources such as quasars at z = 5.5 quasars and galaxy clusters using the CQUEAN camera. This talk will introduce the survey design, and the instrument development, and science highlights of IMS. The science highlights will include the discovery of high redshift quasars, galaxy cluster candidates at z > 1, GRBs, and other interesting sources uncovered from the survey.

[B3C-4-3] **16:35~16:50**

Dark Matter Cores in Dwarf Galaxies

Se-Heon Oh (The University of Western Australia, Australia), Deidre Hunter, Elias Brinks, and Bruce Elmegreen

We present high-resolution rotation curves and mass models of rotation-dominated 26 dwarf galaxies from ‘Local Irregulars That Trace Luminosity Extremes, The HI Nearby Galaxy Survey’ (LITTLE THINGS). LITTLE THINGS is an high-resolution (~6″ angular; < 2.6 km/s velocity resolution) Very Large Array (VLA) HI survey for 41 nearby dwarf galaxies in the local group within 10 Mpc. The rotation curves derived using the high-resolution HI data in a homogeneous and consistent manner are combined with Spitzer 3.6μm and ancillary optical U, B, and V images to construct mass models of the galaxies. These high quality multi-wavelength dataset significantly reduce observational uncertainties, allowing us to examine the mass distribution in the

galaxies in detail. The derived dark matter distributions in the central region of the galaxies are well consistent with those of dwarf galaxies from ‘The HI Nearby Galaxy Survey’ (THINGS), showing much shallower slopes of their mass density profiles in the inner parts. This is in contrast with classical dark-matter-only cosmological simulations, which predict cusp-like dark matter density profiles with steep inner slopes. The core-like dark matter distributions in the LITTLE THINGS dwarf galaxies are more in line with those found in ΛCDM Smoothed Particle Hydrodynamic (SPH) simulations in which the effect of baryonic feedback processes is included.

[B3C-4-4]	16:50~17:05

Cosmic Dust and Cosmology

Thomas Prevenslik (QED Radiations, Hong Kong)

Introduction Since Hubble, cosmology based on Doppler’s redshift considers the Universe as finite beginning and expanding since the Big Bang. If, however, Hubble’s redshift is shown to have a non-Doppler origin, the Universe need not be expanding. Redshift without an expanding Universe is of utmost importance as the outstanding problems in cosmology would be resolved.
Purpose Redshift of galaxy light is shown to occur upon absorption in submicron cosmic dust NPs by the mechanism of QED induced radiation. NP stands for nanoparticle and QED stands for quantum electrodynamics. QED induced redshift treats the absorbed galaxy photon as EM energy confined by the cosmic dust NP under TIR confinement. EM stands for electromagnetic and TIR for total reflection. QED redshift is a consequence of QM that precludes the NP atoms under TIR to increase in temperature upon absorbing the galaxy photon. QM stands for quantum mechanics. Instead, the photon is redshift depending on the properties of the NP.
Theory and Results The Galaxy photon having wavelength λ is induced by QED to create a redshift photon of wavelength λ_o = 2 nd, where D and n are the diameter and refractive index of the cosmic dust particle. The redshift Z = (λ_o - λ) / λ. For the Lyman-α photon and silicate cosmic dust, the QED induced redshift Z and the recession velocity of the Galaxy to the speed of light V/c by Doppler’s effect as shown.

Poster Session	17:05~17:30
Chairs:	**Tzu-Ching Chang** (Academia Sinica Institute of Astronomy and Astrophysics)
	Dharam (Vir) Lal (National Centre for Radio Astrophysics (NCRA-TIFR))