[구IMS-01] Infrared Medium-Deep Survey: Overview

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Infrared Medium-Deep Survey is a near-infrared imaging survey geared toward understanding the formation and the evolution of quasars and galaxies at high redshift, and studying 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 survey of 100 deg^2 using UKIRT to the depth of 23 AB mag, and a shallower imaging of interesting sources using the CQUEAN camera on the 2.1m telescope at McDonald observatory. This talk will give an overview of the survey strategy, the instrument development, and science highlights. The science highlights will include the discovery of high redshift quasars, high redshift galaxy clusters, GRBs, and other interesting sources. At the end of the talk, we will also present the future prospects of our study.

[구IMS-02] Camera for Quasars in Early Universe

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Camera for QUasars in EArly uNiverse (CQUEAN) is an optical CCD camera system made by Center for Exploration of the Origin of the Universe (CEOU). CQUEAN is developed for follow-up observation of red sources such as high-redshift quasar candidates ($z \gtrsim 5$), gamma-ray bursts (GRB), brown dwarfs and young stellar objects. The CQUEAN is composed of a science camera with deep-depletion CCD chip which is sensitive at around 1μm, a set of custom-made wide-band filters for detection of quasar candidates at $z \sim 5$, and a guide camera. A focal reducer was developed to secure 4.8′x4.8′ field of view, and an in-house user software for efficient data acquisition. CQUEAN was attached to 2.1m Otto Struve Telescope in McDonald Observatory, USA, in August 2010. About 1000 quasar candidates including 3 confirmed with follow-up spectroscopy, have been observed so far, and many high-z galaxy cluster candidates, GRBs and supernovae were also observed. And monitoring of HBC 722, a young stellar object, is under way since 2011. Further enhancement of CQUEAN including the introduction of narrow-band filters is planned.