

[KMT-06] Supernovae Research Using the KMTNet

Sang Chul KIM¹, Dae-Sik Moon²
¹KASI, ²University of Toronto

We propose a program of conducting research of young supernovae in nearby galaxies using the KMTNet facilities. Thanks to the wide field ($2^\circ \times 2^\circ$) with multiple filters and the continuous sky coverage using the three 1.6 m telescopes, the KMTNet can provide an unprecedented opportunity for studying supernovae. The primary program is twofold: it can be used as a discovery facility of young supernovae and also as a facility providing multi-band photometric data of unprecedentedly high cadence for supernovae light curves.

[KMT-07] DEEP: KMTNet DEep Ecliptic Patrol

Hong-Kyu Moon¹, Young-Jun Choi¹, Myung-Jin Kim^{1,2},
Masateru Ishiguro³ and William Thuillot⁴
*¹Korea Astronomy and Space Science Institute, ²Yonsei University,
³Seoul National University, ⁴IMCCE-Observatoire de Paris*

For more than a decade, NEA (Near-Earth Asteroid) survey teams equipped with 1 meter-class telescopes discovered thousands of NEAs in the northern sky. As of August 2011, some 8,200 NEAs have been cataloged, yet only five percent of them has been investigated for their physical and chemical properties. In order to improve current situation, we propose a deep ecliptic survey utilizing KMTNet, for detection and characterization of NEAs in the southern sky. Thanks to the wide-field capability (four square degrees) of the telescopes, we will be able to considerably expand the search volume carrying out precision photometry down to 21.5th magnitude. We plan to focus our survey on opposition and two “sweet spots” in the ecliptic belt. Since SDSS colors characterize mineralogical properties of NEAs, g' , r' , i' , z' filters will be employed. Based on the round-the-clock observation, we will study their rotational properties; for multiple systems, mass, density and other physical parameters can be obtained. We plan to maintain a dedicated database of the physical and mineralogical properties of NEAs. With this archive, it is expected that our understanding on the population will see a drastic change. We also plan to participate in the GAIA Follow-Up Network for ground based observation of the Solar System Objects (GAIA-FUN-SSO). The follow-up astrometry will be performed upon alerts issued by the GAIA-FUN-SSO Central Node in France.