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Round-the-Clock Survey of Small Solar System Bodies in the Southern Sky

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Abstract

In 2009, Korea Astronomy and Space Science Institute officially started an ambitious project to build a network of wide-field survey facilities called KMTNet (Korea Micro-lensing Telescope Network). Its primary scientific goal is to discover and catalog earth-mass extra-solar planets. The facilities will be constructed in Australia, South Africa and Chile, and used to provide 24-hour uninterrupted monitoring of the southern sky in three different time zones. Each system consists of 1.3-m prime focus optics and a 20K×20K mosaic CCD which covers 2×2 degrees field of view with sampling suitable for accurate photometry in crowded fields.

During winter, when the Galactic Bulge lies under the horizon, the KMTNet will be devoted to several key science programs such as Solar System studies. Even in summer, one of the telescopes is considered to be to put into ecliptic plane survey. The wide-field capability of the telescopes is ideal for discovery, follow-up and physical characterization of small bodies, down to 21st magnitude in SDSS *r*-band. On-site computing facilities will run an end-to-end astrometric- and photometric- reduction pipeline, and a main facility will provide users centralized database for further analysis. The site operation of the network is expected to begin in early 2014.