

lightcurves, we conducted time-series photometry using Johnson-Cousins  $R$ -filter. Multi-band photometry was also made with  $BVRI$  filters at the same time, for taxonomy. Their preliminary lightcurves and approximate mineralogy will be presented.

### [구 KMT-10] DEEP-South: Taxonomic Classification of Asteroids Based on Johnson-Cousins Photometric System

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Surface mineralogy of asteroids are inferred from photometric and spectroscopic observations with the wide range of wavelengths spanning from far-ultraviolet to mid-infrared. We classify mineralogy of those objects based on their spectral absorption features and spectral slopes. Based on overall spectral shapes, mineralogical classes are divided into three broad complexes: silicates (S), carbonaceous (C) and Vestoids (V), and the end-members that do not fit within the S, C and V broad-complexes. Each of them is subdivided into individual classes. Spectral classification of asteroidal objects has been simply represented by a combination of photometric colors. For a decade, photometric data of asteroids have been grouped and classified according to their SDSS colors converted from the spectral taxonomy. However, systematic studies for asteroid taxonomy based on Johnson-Cousins filters is few, and were conducted only with a small number of objects. In this paper, we present our preliminary results for taxonomic classification of Main Belt asteroids based on KMTNet Johnson-Cousins photometric color system.

### [구 KMT-11] Multi-aperture Photometry Pipeline for DEEP-South Data

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We present a multi-aperture photometry pipeline for DEEP-South (Deep Ecliptic Patrol of the Southern Sky) time-series data, written in C. The pipeline is designed to do robust high-precision photometry and calibration of non-crowded fields with a varying point-spread function, allowing for the wholesale search and characterization of both temporal and spatial variabilities. Our time-series photometry method consists of three parts: (i) extracting all point sources with several pixel/blind parameters, (ii) determining the optimized aperture for each source where we consider whether the measured flux within the aperture is contaminated by unwanted artifacts, and (iii) correcting position-dependent variations in the PSF shape across the mosaic CCD. In order to provide faster access to the resultant catalogs, we also utilize an efficient indexing technique using compressed bitmap indices (FastBit). Lastly, we focus on the development and application of catalog-based searches that aid the identification of high-probable single events from the indexed database. This catalog-based approach is still useful to identify new point-sources or moving objects in non-crowded fields. The performance of the pipeline is being tested on various sets of time-series data available in several archives: DEEP-South asteroid survey and HAT-South/MMT exoplanet survey data sets.

## 남북천문협력

### [초 CSNA-01] North Korea Science and Technology : Overview and Current Trends(북한의 과학기술 개관과 최근 동향 연구)

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북한의 과학기술은 전반 수준이 낮은 것으로 평가 받고 있으나 국방 및 기초과학 영역에서는 높게 평가받는 부분도 있다. 북한 정권의 과학기술 중시 사상에 따라 과학기술자의 우대 정책은 현 김정은 시대에 더 강조되고 있다. 북한의 과학기술은 현장 중심으로 진행되는 게 큰 특징이다. 식량과 에너지 문제 해소를 위한 과학기술자의 현장 동원 등과 함께, 이른바 강성국가 건설의 경제발전 핵심 전략으로 '최신 과학기술에 기초한 현대화 실현'을 강조하고 있다. 북한의 과학원통보 등 학술지와 국제 학술논문 그리고 발명 특허, 북한의 언론매체 등을 통해 북한의 과학기술에 대한 전반적인 활동 상황과 최근의 흐름을 살펴본다.

### [구 CSNA-02] Cooperation Research Plan in