Southern sky) is one of the secondary science projects of KMTNet (Korea Microlensing Telescope Network). The objective of this project is twofold, the physical characterization and the discovery of small Solar System bodies, focused on NEOs (Near Earth objects). In order to achieve the goals, we are implementing a software package to detect and report moving objects in the 18k×18k mosaic CCD images of KMTNet. In this paper, we present preliminary results of the moving object detection experiments using the prototype MODP (Moving Object Detection Program). We utilize multiple images that are being taken at three KMTNet sites, towards the same target fields (TFs) obtained at different epochs. This prototype package employs existing softwares such as SExtractor (Source-Extracto) and SCAMP (Software for Calibrating Astrometry and Photometry); SExtractor generates catalogs, while SCAMP conducts precision astrometric calibration, then MODP determines if a point source is moving. We evaluated the astrometric accuracy and efficiency of the current version of MODP. The plan for upgrading MODP will also be mentioned.

항성 및 항성계

[포 ST-01] Excessive CNO yield of the non-rotating massive Pop III stars

Changwoo Kye, & Sung-Chul Yoon
Department of Physics and Astronomy, Seoul National University

During the last decade, high-resolution spectra of many very metal-poor (VMP) stars have been observed and their surface compositions have been measured. The abundance patterns of the VMP stars strongly constrain the nucleosynthesis of Pop III stars because they born from material enriched by supernovae or wind ejecta of Pop III stars. The observations show overabundances of light elements like C, N, O, Na, Mg and Al and very low C^{12}/C^{13} ratios. These results indicate that mixing between the H-burning and He-burning region occurred in Pop III stars. To explain these observational results, we performed 1D stellar evolution simulations for non-rotating Pop III stars with ZAMS masses ranging from 20M□ to 50M□ and various overshooting parameters. In our grid calculation, convective mixing between helium burning layers and the hydrogen burning shell generally occurred in models with masses less than 40M□ without rotation and these models show an excess of light element abundances. From this result, it is expected that we could explain the observed abundance patterns with convective mixing in non-rotating massive Pop III stars and we do not necessarily have to invoke rotational mixing.

[포 ST-02] Low Resolution Near-Infrared Stellar Spectra Observed by CIBER

MinGyu Kim[1,2], Hyung Mok Lee[1], and CIBER team*
[1]Dept. of Physics and Astronomy, Seoul National University, Seoul 151-742, Korea
[2]Korea Astronomy and Space Science Institute (KASI), Daejeon 305-348, Korea
**Various universities and institutions from Korea, Japan, and USA*

We present near-infrared (0.8 - 1.8 microns) spectra of 63 bright (J_mag < 10) stars observed with Low Resolution Spectrometer (LRS) onboard the rocket-borne Cosmic Infrared Background Experiment (CIBER). Two Micron All Sky Survey (2MASS) photometry information is used to find cross-matched stars after reduction and extraction of the spectra. We identify the spectral types of observed stars by comparing with spectral templates from the Infrared Telescope Facility (IRTF) library. All the observed spectra are consistent with late F to M stellar spectral types, and we identify various infrared absorption lines. As our observations are performed above the Earth's atmosphere, our spectra are free from telluric contamination. Including HST/NICMOS and Cassini/VIMS, the spectral coverage has rarely been achieved in space, and the methods developed here can inform statistical studies with future low-resolution spectral measurements such as GAIA photometric and radial velocity spectrometer.

[포 ST-03] On the Equivalent Width Measurements of High-Resolution Spectra

Hyeong-Jun Kim, Wan-Su Cho and Jae-Woo Lee
Dept. Physics and Astronomy, Sejong University

In the course of the homogeneous spectroscopic study of globular clusters in our Galaxy, we revisit the strategy of measuring equivalent widths (EWs) for the large set of data in a consistent manner. In our presentation, we show comparisons of the EW measurements from various approaches and environments for over two thousand lines in Arcturus and discuss the implication in our future