

칙(Radio Regulation) 제개정을 위해, 3-4년 간격으로 개최되는 전파통신 관련 권위를 가진 회의라고 할 수 있다. 본 회의에서는 전세계의 국가별 전파이익과 상업적 우선권을 둘러싼 정치적, 경제적 이권 다툼이 치열하게 진행되었으며, 2012년부터 추진되었던 국제전기통신연합 산하의 연구반 (ITU-R Study Group)의 의제별 연구결과를 토대로 관련 국제전파규약들을 최종적으로 개정하였다.

국내 전파전문업의 입장에서는 상기 회의의 의제 가운데 현재 한국우주전파관측망의 원활한 운용과 사용주파수 대역의 보호를 위해, 전파규칙 내의 관련 주석(footnote, 5.562D) 개정을 위한 우리나라의 국가기고서를 발표하였다. 그 결과, 이전까지는 128GHz 대역의 위성운용대역에서 우리나라 전파전문업무가 우선 순위를 가지고 2015년까지 사용하도록 제한되어 있던 규정을 개정하고 사용기한에 대한 제약을 삭제하도록 개정하였다.

본 발표에서는 상기 결과 및 기타 주파수대역 (10GHz 대역)의 전파전문업무 보호를 위한 신규 주석, 그리고 철폐논란으로 찬반 논란이 거세었던 윤초 이슈의 논의 결과 등에 대해 소개하고자 한다.

**[포 AT-05] Development of the Auto-guiding program, KAP82 3.0**

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KAP82 (KHU Auto-guiding software Package for McDonald 82 inch telescope)는 천체망원경의 정밀한 추적 가능하게 하는 가이드 프로그램으로, 미국 텍사스주에 위치한 McDonald 천문대의 82 inch 망원경에 장착된 광학 및 적외선 영역의 관측기기 SQUEAN (SED camera for Quasars in EARly uNiverse)과 함께 개발되었다. KAP82는 지난 한 해 동안 두 차례의 개정을 통해 프로그램 작동의 안정성을 확보하고, 동시에 가이드의 성능에도 많은 개선이 이루어졌다. 대상 별 중심을 찾는 알고리즘에 따라 KAP82 1.0에서는 가중 평균(weighted mean)을, KAP82 2.0에서는 산술평균을 활용해 자체 개발한 J-J 함수를 사용해 가이드를 구현한 것이 특징이다. 이번에 개발한 KAP82 3.0은 가이드 알고리즘으로 가우스 함수를 채택하고, 제조사가 다른 다수의 상용 CCD카메라 및 망원경과 연결이 가능한 ASCOM Platform에서 작동하므로, 다른 시스템에도 쉽게 적용할 수 있는 장점이 있다. 본 포스터에서는 KAP82 3.0을 소개하면서 기존 KAP82버전들과 KAP82 3.0의 차이로 알아본 서로 다른 알고리즘에 따른 가이드의 정확성을 비교 분석한 결과를 제시한다.

**[포 AT-06] Introduction to Korean involvement in the Large Synoptic Survey Telescope Project**

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We introduce Korean involvement in the Large Synoptic Survey Telescope Project and activities organized by a group of Korean astronomers as LSST Korea. The Korea Astronomy and Space Science Institute plans to sign a memorandum of agreement with Large Synoptic Survey Telescope Corporation this year. Although the project will start its commissioning observation around 2020, Korean preparation for the LSST era should be initiated now because of an unprecedented amount of data produced in the LSST. We explain current status of our efforts for the LSST Korea.



**[포 KMT-01] KMTNet nearby galaxy survey**

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We present a new survey of nearby galaxies to obtain deep wide-field images of 200 nearby bright galaxies in the southern hemisphere using Korea Microlensing Telescope Network (KMTNet). We are taking very deep and wide-field images, spending 4.5 hours for the B and R filters for each object. Using this dataset, we will look for diffuse, low-surface brightness structures including outer disks, truncated disks, tidal features and stellar streams, and faint companions. The multicolor data will enable us to estimate the incidence and star formation history of those features. We present an outline of the data reduction pipeline, and preliminary results from the commissioning data.

**[포 KMT-02] DEEP-South : Moving Object Detection Experiments**

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DEEP-South (Deep Ecliptic patrol of the

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

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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  $20M_{\odot}$  to  $50M_{\odot}$  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  $40M_{\odot}$  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

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We present near-infrared (0.8 - 1.8 microns) spectra of 63 bright ( $J_{\text{mag}} < 10$ ) 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

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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