constantly revised and modularized according to the upgrades of the TCS and the hardware changes. Recently we have implemented the stable network communication and the semi-automatic focusing modules to enhance observational convenience. In this presentation we describe the current status of the SQUEAN control software and introduce a software architecture which is optimized on efficient astronomical observations.

[구 AT-05] Seoul National University Camera II (SNUCAM-II) : The New SED Camera for Lee Sang Gak Telescope (LSGT)

Changsu Choi and Myungshin Im
Center for the Exploration of the Origin of the Universe, Department of Physics and Astronomy, Seoul National University, Gwanak-gu, Seoul 151-742, Korea

We present the characteristics and the performance of the new CCD camera system, SNUCAM-II (Seoul National University CAMera system II) that was installed on the Lee Sang Gak Telescope (LSGT) at the Siding Spring Observatory Australia in 2016. SNUCAM-II consists of a deep depletion chip covering a wide wavelength from 0.3 μm to 1.1 μm with high sensitivity (QE at 90%). It is equipped with SDSS ugriz filters and 13 medium band width (50nm) filters. On LSGT, SNUCAM-II covers 15.7 x 15.7 arcmin FOV at pixel scale of 0.92 arcsec and a limiting magnitude of g = 19.91 AB mag at 5σ with 180s exposure time. SNUCAM-II will enable us to study Spectral Energy Distributions (SEDs) of diverse objects from extragalactic sources to solar objects in the southern hemisphere for research and education activities.

[구 AT-06] Results of Observation Performance Test for NYSC 1m Telescope

Taewoo Kim, Wonseok Kang, Sun-gill Kwon, Sang-Gak Lee
National Youth Space Center

국립고흥청소년우주체험센터는 덕흥천문대 1M망원경으로 관측한 자료를 축적하고 있다. 1M망원경이 설치 된 후 발생했던 문제점인 광축, 극축, 지향정밀도, 추적정밀도를 개선하기 위해 시도했던 방법의 결과를 개선 전후 관측 자료를 비교하여 소개하고자 한다. 현재는 오토가이드 없이 별 추적이 3600초 정도 가능하다. 또한, 스크립트 활용으로 소프트웨어를 개선하여 관측의 용이성을 증대시켰다. 은하측광, 분광, 시계열관측 등 차별화된 연구를 수행하기 위한 기기 및 소프트웨어의 확충·보완을 수행하고 있다.

중성미자 천문학과 한국형 중성미자망원경

[초 NK-01] Korean Neutrino Telescope and Neutrino Science

Seon-Hee Seo
Department of Physics and Astronomy, Seoul National University, Seoul, Korea

Neutrinos play an important role in astronomy and therefore they need to be observed as well as other astronomical messengers. The first observation of astronomical neutrinos is from the SN1987a by the Kamiokande neutrino telescope in Japan. Unlike other astronomical messengers neutrinos can cover all energy range of astronomical phenomena due to their weak interactions and neutrality.

Multi messenger astronomy including optical, neutrino, and cosmic ray observations, provides more information on astronomical phenomena and thus such collaborational works are ongoing worldwide. A future Korean neutrino telescope consisting of huge (260 kiloton) water Cherenkov detector under a mountain was proposed in 2016 and the sensitivity studies on various topics are in progress with international collaborators.

In this talk I will introduce the future Korean neutrino telescope and its science as well as the potential candidate sites in Korea. We invite all of you to work together for the future Korean neutrino telescope that will operate more than 30 years.

[초 NK-02] Astronomy Potentials with Korean Neutrino Detector and Telescope

Soo-Bong Kim
Department of Physics and Astronomy, Seoul National University, Seoul, Korea

A 250 kton water Cherenkov detector is proposed to be built in Korea to determine the CP violation phase and the neutrino mass ordering using a neutrino beam produced in J-PARC of Japan. It will be also a world-leading neutrino telescope to reveal the mystery of supernova explosion by observing a neutrino burst. The telescope is expected to detect more than 100,000