

Insoo Yuk, A-Ran Lyo, Dong-Wook Lee, Sung-Ho Lee, Moo-Young Chun, and Jeong-Yeol Han

Korea Astronomy and Space Science Institute

KASI is planning a large telescope project to acquire 10% share of the GMT (Giant Magellan Telescope) extremely large telescope as one of national R&D project. By participating in GMT, we expect to provide the best environment for observational astronomers in Korea and give opportunity to upgrade the current research and instrumentation level to world-leading class. In this contribution, we will report the concept of the GMT project and Korean participation plan as well as the current status of fundraising activity.

[VIII-2-2] Development of 80cm Telescope for Muju County Public Astronomical Observatory

S. W. Min¹, S. J. Kim¹, M. Jang¹, B. S. Mun¹, D. H. Lee², T. H. Lee^{1,2}, K. S. Moon^{1,2}, and K. H. Seol¹

¹*Space Science and Technology Laboratory, Kyung Hee University,* ²*Space & Astronomy, Inc.*

Space Science and Technology Laboratory at Kyung Hee University developed an 80cm Nasmyth telescope with the joint work of Space & Astronomy, Inc. It was set up at Muju county public astronomical observatory in Jeonlabuk-Do. Nasmyth focus system was selected for the telescope to use two focal points by a rotatable tertiary mirror. Focal ratios of the telescope are f10, f5 respectively. Support of the main mirror is made with Lasalle-system. This system uses 24-points in the back side of the mirror that are all resting on small counter-weights and side support is 10-points Boll link Flexible type with 2 Lasalle type. The mount is wheel & disk type Alt-Azimuth design using DC-servo motors. External high accuracy encoder has 47,600 sine-waves/rot. These encoders are used to make real-time corrections on all gearing errors.

[VIII-2-3] Development of the software for high speed data transfer of the high-speed, large capacity data archive system for the storage of the correlation data from Korea-Japan Joint VLBI Correlator (KJJVC)

Park, Sun-young, Kang, Yong-woo, Roh, Duk-Gyoo, Oh, Se-jin, Yeom, Jae-hwan, Sohn, Bong won, Kanya Yukitoshi, and Byun, Do young

Korea Astronomy and Space Science Institute (KASI)

Korea-Japan Joint VLBI Correlator (KJJVC), to be used for Korean VLBI Network (KVN) in Korea Astronomy & Space Science Institute (KASI), is a high-speed calculator that

outputs the correlation results in the maximum speed of 1.4GB/sec. To receive and record this data keeping up with this speed and with no loss, the design of the software running on the data archive system for receiving and recording the output data from the correlator is very important. But, the simple kind of programming using just single thread that receives data from network and records it by turns, can cause a bottleneck effect while processing high speed data and a probable data loss, and cannot utilize the merit of hardwares supporting multi core or hyper threading, or operating systems supporting these hardwares. In this talk we summarize the design of the data transfer software for KJJVC and high speed, large capacity data archive system using general socket programming and multi threading techniques, and the pre-BMT (Bench Marking Test) results from the tests of the storage product providers' proposals using this software.

[VIII-2-4] Current Progress in Fabrication of Ta and Nb based STJs for an Astronomical Detector

Ho Seop Yoon^{1,2,5}, Young-Sik Park¹, Jang-Hyun Park¹, Min Kyu Yang², Jeon-Kook Lee², Yonuk Chong³, Yong-Ho Lee³, Sang-Kil Lee³, Dong-Lak Kim⁴, and Sug-Whan Kim⁵

¹*Korea Astronomy and Space Science Institute (KASI),* ²*Korea Institute of Science and Technology (KIST),* ³*Korea Research Institute of Standards and Science (KRISS),* ⁴*Korea Basic Science Institute (KBSI),* ⁵*Yonsei University*

STJ (Superconducting Tunnel Junction) technique offers next generation photon detectors exhibiting high energy resolution, high quantum efficiency and photon counting ability over the broad wavelength range from X-ray to NIR. We report the success in fabrication of Ta/Al-AlOx-Al/Ta and Nb/Al-AlOx-Al/Nb micro structure deposited on sapphire substrates using various techniques including UV photolithography, DC Sputtering, RIE, and PECVD technique. The characterization experiment was undertaken in an Adiabatic Demagnetization Refrigerator at an operating temperature below 50mK. The details of experimental investigations for electrical characterization of STJ of 20~80µm in side-lengths are discussed. The measured I-V curves were used to derive the detector performance indicators such as energy gap, energy resolution, normal resistance, normal resistivity, dynamic resistance, dynamic resistivity, and quality factor.

[VIII-2-5] Network Lunar Science for International Lunar Network (ILN)

Young-Jun Choi, Hong-Kyu Moon, Hong-Suh Yim,