On 2016 April 13th the Jovian satellite Ganymede occulted a 7th magnitude star. The predicted occultation track (occultation shadow) crossed the Northern Pacific Ocean, Japan, and South Korea. Hence, it was a very favorable event due to the star brightness in order to be accessible for small-aperture telescopes as well.

While no other similar event is expected for the next 10 years, only two occultation events are reported in the literature in the past, from Earth in 1972 and from Voyager, in large disagreement in respect to the atmospheric detection. However, evidence of an exosphere around Ganymede was inferred through H Lyman alpha emission detected by Galileo UVS, through HST/GHRS detection of far-UV atomic O airglow emissions, signature of dissociated molecular oxygen.

We organized a short-notice international coordinated occultation monitoring network with the aim to search for a signature of Ganymede's exosphere in the occultation light-curve by using facilities on Mauna Kea (NASA-IRTF) and Sobaeksan Optical Astronomy Observatory (SOAO) in South Korea. Scientific

New Frontier of Gravitational Wave Research

[포 GW-01] Structural Analysis of SLGT Platform

Gungwon Kang[1], Sang-Hyeon Ahn[2], Yeong-Bok Bae[2], Chunglee Kim[2], Whansun Kim[3], John J. Oh[3], Sang Hoon Oh[3], Chan Park[1], Edwin J. Son[3], Minjoong Jeong[1], Ronald S. Norton[4], Ho Jung Paik[4]
[1]Korea Institute of Science and Technology Information, [2]Korea Astronomy & Space Science Institute, [3]National Institute for Mathematical Sciences, [4]University of Maryland

SLGT (Superconducting Low-frequency Gravitational-wave Telescope) platform has three arms whose ends support six superconducting test masses. Therefore, any motion of the platform could cause noises on measuring the displacements of test masses which contain the effect of gravitational waves passing by. Thermal motions of the platform are the main noise source, and are related to resonant motions of the platform structure. We briefly report preliminary results of nodal analysis in finite element method performed for various platform configurations including 2-m, 30-m, 50-m and 100-m arm lengths. Platform designs giving resonant frequencies outside of the signal bandwidth (e.g., 0.1~10 Hz) have been identified.

[포 GW-02] Newtonian Noise and Mitigation for SLGT

John J. Oh[3], Sang-Hyeon Ahn[1], Yeong-Bok Bae[1], Gungwon Kang[2], Chunglee Kim[1], Whansun Kim[3], Sang Hoon Oh[3], Chan Park[2], Edwin J. Son[3], Jan Harms[5], Ho Jung Paik[6], Yong Ho Lee[4]
[1]Korea Astronomy & Space Science Institute, [2]Korea Institute of Science and Technology Information, [3]National Institute for Mathematical Sciences, [4]Korea Research Institute of Standards and Science, [5]Gran Sasso Science Institute, Italy, [6]University of Maryland, U.S.A.

The pilot study of SLGT (Superconducting Low-frequency Gravitational-wave Telescope) is being performed by KKN (KASI-KISTI-NIMS) collaboration. Among environmental noise sources, Newtonian noise (NN) is one of the most challenging obstacles in order to achieve a good sensitivity in low frequency below 10Hz for terrestrial gravitational wave (GW) detectors. So we should mitigate them for operating the SLGT to detect GWs on the ground. In this poster, we discuss the NNs and its mitigation for SLGT.

TOWARD NEXT GENERATION CORONAGRAPH

[포 TG-01] Development of the Camera System for Total Solar Eclipse

Jihun Kim, Seonghwan Choi, Ji-Hye Baek, Jongyeob Park, Su-Chan Bong, Bi-Ho Jang, Sung-Joon Park, Heesu Yang, Young-Deuk Park, Kyungsuk Cho
Korea Astronomy and Space science Institute

Korea Astronomy and Space Science Institute (KASI) has been developing the Camera System for the Total Solar Eclipse (TSE) observation. In 2016 we have assembled a simple camera system consisting of a commercial camera lens, a polarizer, bandpass filters, and a Canon camera to observe the solar corona during the Total Solar Eclipse in Indonesia. For 2017 TSE observation, we have studied and adapted the compact coronagraph design proposed by NASA. The compact coronagraph design dramatically reduces