anomalies associated with a thermoremanent magnetization in a dynamo field at 3.7 Ga-4.0 Ga. We also find that the paleopole positions for the Nectarian anomalies are widely scattered and separated beyond their error ellipses. Their variable directions imply that the local field orientation was not fixed during the formation times of the anomalies. This suggests that the Moon may have experienced complex field geometries. A large spread of paleopole positions on the Moon may be due to true polar wander driven by impact basin formation or internal density changes, or from equatorial dynamo orientations produced by anomalous core heat flux conditions. The long cooling timescales of the anomalies also suggests they were not magnetized by more transient fields produced by impact-induced stirring of the core.

10:00 [IV-2-3]

Definition of Water Ice on Airless Body Images

Haingja Seo[1], Young-Jun Choi[2,4], Eunjin Cho[2,4], Ik-Seon Hong[2,3], Myungjin Choi[1]

[1]*InSpace (Intelligence in Space)*
[2]*Korea Astronomy and Space Science Institute*
[3]*Department of Astronomy, Space science and Geology, Chungnam National University*
[4]*Astronomy and Space Science, University of Science and Technology*

Analysis of airless body images can be another way for researching their surface. Water ice on surface especially is revealed brightly in the images. To confirm that the bright region in the image is water ice, it is necessary to define a reference value. We used Mercury images by MDIS/Messenger and Ceres images by FC/DAWN, and these data are images where the water ice had been found. Water ice on airless body is likely to be in Permanently Shadow Regions(PSRs), and we inferred that it caused brightness variation on PSRs' images. We defined the values of brightness variation and reflectance variation to identify the region of water ice in image. We also try to compute the value of temperature variation applying thermal model. The constructed value is acceptable to ShadowCam data to help water ice detection.

10:15 [IV-2-4]

Determination of polarization phase curve: sparse observation case

Chae Kyung Sim[1], Sukbum A. Hong[1], Sungsoo S. Kim[1], Minsup Jeong[2], Kilho Baek[1], Young-Jun Choi[2]

[1]*Kyung Hee University*
[2]*Korea Astronomy and Space Science Institute*

Polarimetry of the Moon allows us to study the size and composition of regolith grains on the lunar surface. This information is useful in understanding the surface properties and determining landing sites for future lunar missions. The wide-angle polarimetric camera (PolCam) onboard the Korea Pathfinder Lunar Orbiter (KPLO) will perform polarimetric measurements of the lunar surface from the lunar orbit for the first time. Since the degree of linear polarization is a function of phase angle (α), it is necessary to observe the same region for multiple times at various α. To prepare for any unfortunate case of incomplete PolCam or KPLO mission, here we study how to analyze the polarimetric measurements from sparse α observations. Using a ground-based polarimetry data, we study the use of reduced fitting formula to estimate the polarization maximum ($P_{\max}$). We also investigate the allowable range of α-coverage assuming several cases of sparse observations. When the polarimetric measurement at high-α is required, at least one measurement should be obtained at the $\alpha > 90°$ to properly estimate $P_{\max}$.

10:30 [IV-2-5]

Basic research for the development of lunar far side highland soil simulant

Tae Yun Kang[1,2], Kyeong Ja Kim[2], Yi Yu[1]

[1]*Chung-nam national university department of Astronomy, Space Science and Geology*
[2]*Korea Institute of Geoscience and Mineral Resources*

Recently, various lunar soil simulants are made for purpose of lunar resource exploration & construction of the lunar basement in the world including USA, China, Japan, Korea etc. Developed lunar soil simulant helps to make the similar lunar surface environment so that scientists and engineers can test the ability of lunar mission equipment. In this research, the far side highland type soil simulant is supposed to develop for purpose of human/unhuman lunar exploration on the lunar surface. Apollo 16 sample is chosen as reference material and anorthosite collected from Hadong-Sancheong, peridotite, pyroxenite will be used for raw materials. Among lunar soil simulant properties for this study particle size distribution and composition of major elements are main parameters to simulate. In addition, how to simulate particle size distribution and elemental weight percent of oxides in the lunar simulant sample are explained.

10:45 [IV-2-6]

Physical properties of asteroid (298) Baptistina : light curve, shape and phase curve

Sang-Min Lee[1], Myung-Jin Kim[2], Yonggi Kim[1], Hong-Kyu Moon[2], Young-Jun Choi[2,3], Anna Marciniak[4], Murat Kaplan[5], Orhan Erece[5,6]

[1]*Chungbuk National University, Korea*
[2]*Korea Astronomy and Space Science Institute, Korea*