

MATERIALS AND STRUCTURES SYMPOSIUM (C2)

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SPECTRAL DEPENDENCY OF POLARIZATION PROPERTIES FOR THE LUNAR REGOLITH

Abstract

Multi-band polarimetry is a powerful tool for understanding the surface characteristics of airless planetary bodies such as those of the Moon. Polarized light scattered on a airless body contains information on such as mean particle size, compositions, porosity that can be estimated by analyzing the degree of polarization whose spectral behavior is not well known yet. We carried out multi-band (U, B, V, R and I pass-bands) polarimetric observations toward the lunar surface from Lick observatory using 15cm reflecting telescope. We calculate the size parameter of the lunar regolith from our polarimetry data utilizing the albedo map from Clementine. Comparing the polarization maximum ratios and size parameters between adjacent band-passes, we found that different topography (maria and highlands) shows different spectral behavior of the polarization properties. We anticipate that understanding of the spectral dependency of the polarization properties may help understand the different regolith properties between maria and highlands.