



## P53C-2239: Optical Maturity on the Walls of Lunar Craters

**Friday, 16 December 2016**

**13:40 - 18:00**

📍 *Moscone South - Poster Hall*

Recent studies have found that the optical maturity (OMAT) and mean grain size  $\langle d \rangle$  of the lunar regolith have latitude dependences, probably because of the reduced flux of space-weathering agents at high latitudes. Here we extend our previous work (Jeong et al.) to the inner walls of lunar impact craters, dividing the wall into four quadrants. We consider the 1,872 craters whose diameter is between 5 km and 120 km in the Lunar Impact Crater Database 2015 from the LPI. We adopt the topography-corrected OMAT data from the Kaguya/MI observations. We find that at high latitudes, the equator-facing walls have generally smaller (more mature) OMAT values than the pole-facing walls. This is consistent with the global latitudinal dependence of the OMAT and  $\langle d \rangle$  values previously found. The overall mean value curve of [OMAT(E) - OMAT(W)] has a minimum and maximum near longitudes  $-60^\circ$  and  $+60^\circ$ , respectively. This is thought to be due to the shielding of solar wind particles during the Moon's passage through the Earth's magnetotail. Because micrometeoroids are not affected by the magnetosphere passage, the longitudinal effect unambiguously discriminates between micrometeoroid and solar wind effects.

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