

PPS024-P06

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## Electric wave absorptions in Reiner Gamma by lunar radar sounder (LRS) on Kaguya orbiter

Yuichi Bando<sup>1\*</sup>, Atsushi Kumamoto<sup>1</sup>, Norihiro Nakamura<sup>1</sup>, Hiroyuki Nagahama<sup>1</sup>

<sup>1</sup>Tohoku Univ.

Reiner Gamma is a sinuous higher reflectance features than the surrounding mare basalt area near the Oceanus Procellarum on the moon, and appears to associate with regions of significantly high crustal magnetic field. This association of crustal magnetic field with the high reflectance has been explained by several hypotheses: 1) less susceptibility to undergo optical maturation (e.g., space weathering) by magnetic field-induced deflection of solar wind (constant flow of charged particles coming from the Sun) (Hood and Schubert, 1980; Kurata et al. 2005), 2) electrostatic levitation of fine particles by magnetic field (Garrick-Bethell et al. in press). Therefore, it was suggested that the Reiner Gamma corresponds to magnetized materials in the crust or magnetic iron-rich ejecta materials, being able to deflect the solar wind and to deposit new fine particles. This would prevent surface materials to suffer space weathering, and so produce the higher reflectance.

Neish et al. (2010) have only focused on surface nature of Renner Gamma by Mini-RF (radio frequency) synthetic aperture radar. Here we show a first trial to determine surface electric properties on Reiner Gamma by Lunar Rader Sounder (LRS) on board Kaguya with numerical simulation of surface reflection echo. We found no subsurface echo underneath the Reiner Gamma, but found surface absorption characteristics of electric wave in Reiner Gamma. The surface reflection echo simulation inside and outside Reiner Gamma discriminated this absorption with the effect of surface reflection from topographic roughness, suggesting the presence of radar absorbent materials on the surface in Reiner Gamma.

Keywords: Kaguya(SELENE), Lunar Radar Sounder, Reiner Gamma