



## **Solar Wind Interaction with Lunar Magnetic Anomalies: Reiner Gamma**

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Discovered by early astronomers during the Renaissance, the Reiner Gamma formation is one of the most peculiar lunar surface features. Observations have shown that the tadpole-shaped albedo marking, the so-called swirl, found on the Oceanus Procellarum is co-located with one of the strongest magnetic anomalies (LMA) on our Moon. In previous work, using a horizontal dipole model [Deca et al. 2014, 2015], we have described the formation of a mini-magnetosphere structure surrounding the swirl pattern, locally shielding the underlying lunar surface from the impinging solar wind, and hinting at a correlation with its main surface albedo brightness marking in a distinctive concentric oval shape. Using the observed magnetic field model [Tsunakawa et al. 2015] in our full-kinetic electromagnetic framework, iPic3D, we reproduce a surface weathering pattern closely resembling the details of the Reiner Gamma swirls. This work therefore provides strong evidence that the solar wind standoff theory for lunar swirl formation is the dominant process to explain the albedo markings of the Reiner Gamma region.

This work was supported by NASA's SSSSERVI/IMPACT and by the Swedish National Space Board, Grant No. 136/11. Resources supporting this work were provided by the NASA High-End Computing (HEC) Program through the NASA Advanced Supercomputing (NAS) Division at Ames Research Center. Test simulations utilised the Janus supercomputer, supported by NSF (CNS-0821794) and CU Boulder.