

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Lunar Swirl Formation with Irregular Shaped Dusty Plasma Medium**<sup>1</sup> CALVIN CARMICHAEL, JENS SCHMIDT, GRAESON GRIFFIN, LORIN MATTHEWS, TRUPELL HYDE, Baylor University — On the lunar surface, features with high albedos aptly named Lunar Swirls, have been observed near anomalous lunar magnetic fields. Although the formation mechanism for Lunar Swirls remains in question, numerical models suggest that complex plasmas interacting with local magnetic fields may be accountable for these lunar features via dust transport and weathering of regolith. Identifying the actual relationship between dusty plasma and these lunar magnetic fields would lend insight into the formation of lunar swirls. At Baylor University, a GEC RF Reference Cell and an Inductively Coupled Plasma Generator (IPG-B) are being used to experimentally study the interaction between dusty plasma and simulated lunar magnetic fields on non-conducting surfaces similar to crustal magnetic abnormalities affected by solar winds. This poster considers the formation of Lunar Swirls experimentally using dipole magnets and irregular dust particle sizes from a lunar regolith-like source and compares them to results using uniform dust particles. Results are then extrapolated to map the swirl patterns on the lunar surface in accordance with known magnetic field lines. Furthermore, the kinematics of dust transport in a simulated direct solar wind environment are further examined.

<sup>1</sup>This material is based upon work supported by the National Science Foundation and NASA under NSF Grants No. 1740203 and 1707215, NASA contract 1571701 and JPL subcontract 1647194.

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Date submitted: 26 Jun 2020

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