Abstract Submitted for the DPP20 Meeting of The American Physical Society

Lofting of Lunar Simulant in a Dusty Plasma Environment¹ GRAESON GRIFFIN, JENS SCHMIDT, CALVIN CARMICHAEL, LORIN MATTHEWS, TRUELL HYDE, Baylor University — First observed by the Surveyor missions and later the Apollo astronauts, a glow above the lunar horizon created by the refraction of light through a cloud of dust particles can be seen just before the sun rises into view over the silhouette of the moon. The physics behind this "Lunar Horizon Glow" is still not well understood and is critical to determining the role that dust will play in the daily environment of astronauts during extended stays on the lunar surface. To date, prior modeling and experimental work suggests that one possible mechanism behind the glow is lunar regolith lofted from the surface of the moon due to photoelectric charging effects. This poster will seek to further previous studies by examining dust lofting for both lunar simulant and spherical dust particles under varying experimental conditions employing a GEC RF reference cell and an inductively-heated plasma wind tunnel IPG6-B. Together these devices provide a wide variety of charging environments, allowing examination of the charging and lofting of lunar simulant due to a stream of ionized particles. The data produced will be compared with previous experimental and numerical results.

¹This 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: 29 Jun 2020

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