**An Overview of LO-DuSST (Lunar Occupancy Dust Surface Separation Technologies) Objectives**

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Of the myriad of issues facing lunar exploration and maintaining an extended lunar presence, lunar dust is possibly the most pervasive. These jagged, chemically reactive, electrostatically charged, sometimes magnetic particles can impact every aspect of a lunar surface mission ranging from abrading extra-vehicular activity (EVA) suits to disrupting lunar vehicle thermal management systems to impeding efficacy of excavation equipment to impacting lunar inhabitant health. NASA’s Lunar Occupancy Dust Surface Separation Technologies (LO-DuSST) task, as a part of the broader Lunar Surface Innovation Initiative (LSII) project, seeks to implement synergistic active and passive lunar dust management and mitigation technologies for an array of applications. One such application is protection of power generation capabilities via solar panel arrays. Plasma dust lofting coupled with a piezoelectric-driven vibration technology will be demonstrated on solar panel surfaces contaminated with lunar dust simulant. Intrinsically low adhesion coatings will be applied to these surfaces to enhance dust removal. Electrostatic repulsion in confined geometries and materials to manage high velocity lunar dust wear will also be investigated. Collectively, these active and passive mitigation technologies will facilitate lunar surface operations including occupancy logistics, landing pad operations, power generation, and transportation. Initial results regarding lunar simulant-contaminated solar panel performance experiments, dust lofting using an electron beam, surface interactions of high velocity lunar dust arising from lunar lander plume-surface interactions, and lunar dust simulant-material interaction experiments will be discussed.