

Rethinking of the Regolith transport on airless bodies in the Solar system

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Recent laboratory experiments provided important constraints on the characteristics of electrostatic dust transport on airless bodies. The proposed “patched charging model” illustrates how regolith particles acquire grain charges much higher than expected to drive the surface dust movements, including rotation and hopping of individual regolith particle as well as the overall smoothing of the regolith surface observed in the experiments. We will discuss the experimental results and re-examine the observations that may be related to electrostatic regolith transport on the Solar system airless bodies, e.g., the Moon, asteroids, comets, and tiny moons of Saturn.