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Transport of charged grains in Lunar environment.

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An important topic for lunar missions is understanding how the charged dust behaves, roles of dust transport, levitated dust and electrodynamics around the lunar surface. It could be essential for ensuring the continued safe operation of equipment and long-term exploration. Lunar dust must be treated as dusty plasma. The dust grains and lunar surface are electrostatically charged by the Moon's interaction with the local plasma environment and the photoemission of electrons due to solar UV and X-rays. This effect causes the like-charged surface and dust particles to repel each other, and creates a near-surface electric field .Using the analytic kinetic (Vlasov) theory and magnetohydrodynamic theory, and numerical modeling we show physical processes related to levitation and transport dusty plasma on the Moon. These dust grains could affect the lunar environment for radio wave and plasma diagnostics and interfere with exploration activities. The aim of this paper is to make the short review of the Lunar dusty plasma and possible charging mechanism in lunar environment.