



Electrostatic Dust Analyzer (EDA) for Exploring Dust Transport Processes on the Lunar Surface

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Platform: Lander

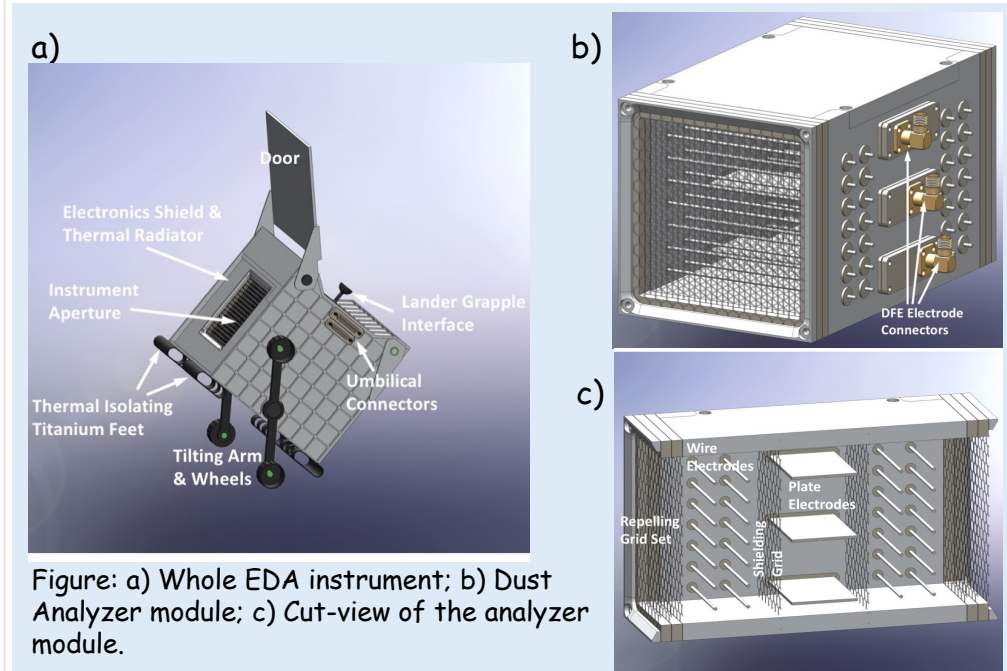
Science:

- Explore the electrostatic dust transport phenomenon on the lunar surface in order to understand its role in shaping the properties of the lunar regolith. EDA is dedicated for measuring low-speed electrostatically lofted dust particles in contrast to its counterparts of high-speed dust detectors.
- Provide enhanced knowledge about potential hazards posed by electrostatically lofted dust and critical inputs for developing the mitigation strategies for future lunar robotic and human exploration.

Objectives:

- Detect individual dust particles that are mobilized due to electrostatic effects on the lunar surface.
- Characterize the charge, velocity, and mass distributions of lofted dust particles.
- Characterize the electrostatically transported dust flux and its variability as function of local time, solar activity, and orbital phase around the Earth.

CoIs: Mihaly Horanyi, Zoltan Sternovsky, Jan Deca/University of Colorado; Ian Garrick-Bethell/UC - Santa Cruz



Key Milestones:

- Year 1: Preliminary design and breadboard development of subsystems; Refine the investigation requirements via various analyses and studies.
- Year 2: Design and build high-fidelity prototype subsystems and test in laboratory environments (TRL 5).
- Year 3: System integration and tests in both the laboratory and relevant environments (TRL 6).

TRL (4) to (6)