

## Measuring the lunar dust cloud via in situ dust detection

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**Abstract.** The Lunar Dust EXperiment (LDEX) is an in situ dust detector for the Lunar Atmosphere and Dust Environment Explorer (LADEE) mission to be launched in 2013. It will characterize the dust exosphere by mapping the size and spatial distributions of dust grains in the lunar environment as a function of local time and the position of the Moon with respect to the magnetosphere of the Earth. LDEX will gauge the relative contributions of the two competing dust sources: a) ejecta production due to the continual bombardment of the Moon by interplanetary micrometeoroids, and b) lofting of small grains from the lunar surface due to plasma-induced near-surface electric fields. Given the expected bombardment rate of micrometeoroids, the column density of the lunar dust cloud can be predicted. Additionally, observations of the excess brightness of the solar corona above the lunar terminator during the Apollo 15 and 17 missions can yield a prediction for the column density. However, a disparity exists as these two values differ by an order of magnitude. This poster will describe the working principles of LDEX, discuss the status of its development, and discuss the status of the observational plans once LDEX will be in orbit about the Moon.