

Abstract Submitted
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The Dust Accelerator Facility at CCLDAS ANTHONY SHU, E. GRUN, M. HORANYI, S. LEBLANC, T. MUNSAT, S. ROBERTSON, R. SRAMA, Z. STERNOVSKY, E. THOMAS, M. WAGNER, T. WINGFIELD, University of Colorado, AND THE CCLDAS TEAM — The lunar surface is continually bombarded with micrometeorites, primarily within the 0.1-1 μm and ≤ 100 km/s range. The impacts of such particles at the lunar surface introduce significant potential hazards to humans and instruments, but also create a scientifically rich complex system. Upon impact into the lunar regolith, cratering and micro-plasma creation can lead to liberation of many families of materials in to the charged lunar dusty plasma. To address the many scientific and technical questions surrounding the hypervelocity micrometeorites at the lunar surface, we describe an accelerator facility based on nuclear accelerator techniques, to be constructed at the Colorado Center for Lunar Dust and Atmospheric Studies at the University of Colorado. Key technical features of the 3 MV electrostatic accelerator include 1) high achievable charge and mass, up to realistic micrometeorite parameters, 2) precise selection of particle size and velocity for high experimental control, 3) high repetition and data acquisition rates. We present technical details of the accelerator and a description of the scientific questions to be addressed at such a facility within the Center.

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