

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

The 3MV Hypervelocity Dust Accelerator at the Colorado Center for Lunar Dust and Atmospheric Studies¹ A. SHU, A. COLLETTE, K. DRAKE, M. HORANYI, S. KEMPF, T. MUNSAT, P. NORTHWAY, S. ROBERTSON, Z. STERNOVSKY, E. THOMAS, Univ. of Colo. Boulder, E. GRUEN, R. SRAMA, Max Planck Institut fur Kernphysik, CCLDAS TEAM² — Micrometeorite impacts and dusty plasma phenomena can be found in a wide variety of subjects. In many extraplanetary systems, such as in deep space and on airless bodies such as asteroids or the moon, dusty plasmas play a large role in the basic scientific evolution of the environment. Dust can also be captured and studied in *dust astronomy* in order to better understand the evolution of our universe, similarly to how photons are used in traditional astronomy. At the Colorado Center for Lunar Dust and Atmospheric Studies, we have developed a 3MV hypervelocity dust accelerator in order to study these and other applications of dust and dusty plasmas. This facility is capable of accelerating micron sized dust particles up to 10's of km/s. In addition to this we have several vacuum chambers used for dusty plasma experiments. The large Lunar Environment Impact Laboratory (LEIL) test chamber will be used to study dust levitation, space weathering, and lunar exosphere evolution. A smaller ultrahigh vacuum chamber will be used to detect neutral species in micrometeorite impact ejecta and detect and analyze impact flashes. In addition to this work, graphite tokamak wall tile material will be placed into the beam path to determine damage characteristics from dust in fusion systems.

¹This work funded by the NASA Lunar Science Institute

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Date submitted: 14 Jul 2011

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