

Abstract Submitted
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Electrification and Charge Distribution in Vertically Shaken Granular Media.¹ RUBEN ROJAS, FREJA NORDSIEK, DANIEL LATHROP, Univ of Maryland-College Park — Granular charging of particle laden flows at large scales is a widespread phenomenon and has long been observed in nature: Volcanic ash clouds, desert sandstorms, dust devils, thunderstorms and snowstorms all undergo electrification at large scale. As a first approach to understand this phenomenon, we confined granular particles to a vertically oscillating cylindrical chamber with top and bottom conducting plates. Long term voltage transients between the plates and a high dependence on the total particle surface area suggested the preponderance of collective effects in the electrification processes. In order to further explore this hypothesis, we reduced the electrode area for the measurement with two 2-cm circular flat probes on the top plate. With this setup we detected differences in the charge distribution among the particles due to a more localized measurement of the voltage.

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