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Electrical charging in shaken granular media FREJA NORDSIEK, DANIEL LATHROP, University of Maryland at College Park — Results are presented on the electrical charging of granular media shaken between two conducting plates. Voltage measurements were taken between the plates for both monodisperse and bidisperse sets of particles of different materials with diameters in the 100 micron to 1 mm range. Particle charging was observed through capacitive coupling with the plates and electrical discharges. The following results were observed: 1) a monotonic increase in charging with shaking strength, 2) a threshold in the number of particles of filling the cell with about one layer of particles to see charging, 3) material and diameter differences causing an order of magnitude spread in measured signal, and 4) long time scale transients. The influence of collective effects and the potential relevance to natural charging phenomena seen in sand storms, volcanic ash clouds, thunderstorms, and thundersnow are discussed.

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