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Nonlinear Granular Electrostatics TROY SHINBROT, Rutgers University — Anyone who has run a sandblasting machine can attest that flowing sand generates a robust and painful stream of electric shocks to the operator. The same mechanism that produces these shocks also generates lightning in sandstorms, and influences the formation of asteroids as well as industrial systems such as fluidized beds. We describe recent progress showing that multiple length and time scales are involved in granular charging, which produces surprising effects. These include distinct charge patterns for positively and negatively charging surfaces, and competing charging and discharging times that can predictably lead to decreased electrification with increased frequency of vibration of granular beds. None of this work is of the calibre of Jerry Gollub's, but I present it as an homage: work that I think he would have enjoyed.

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