

Abstract Submitted
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Sound and Force Propagation in Granular Materials CLIFFORD E.

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A characteristic of granular materials under stress is a highly nonuniform distribution of forces. These localized force chains are prominent of 2-D packings of photoelastic particles, but their role in sound propagation is unclear. We mechanically excite 100 μ s square wave pulses and periodic waveforms through such packings. We report optical measurements of changes in the force chain network using a high speed camera, and simultaneous acoustic measurements from biaxial accelerometers of similar size and mass to the photoelastic particles. These measurements provide amplitude and speed (time of flight and group velocities) of the response both on and off the force chain network.

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