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Experimental Measurements of Force Propagation in Vibrated Photoelastic Disks[1] ALINE HUBARD, MARK SHATTUCK, CUNY Graduate Center and the Benjamin Levich Institute and Physics Department of The City College of New York — We measure and analyze the propagation forces in vibrated disks under constant pressure with different amplitudes and frequencies. We use photoelastic particles to visualize the stress within each particle using a high-speed video camera. From the images we can extract the time dependent force at each contact to determine how force propagates through the contact network. Using mono-disperse particles we focus on force propagation during the phase transition from an ordered solid-like state to a disordered fluid-like state as we change the vibration amplitude. With bi-disperse particles we compare with the transition to a disordered solid-like state.

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