Couette shear of an ideal 2D photo-elastic granular system[1]

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— In this study, Couette shear experiments are conducted using 2D photoelastic granular particles, which allows us to apply infinite shear strain to the granular system. We obtain force information at the granular scale using the calibrated photo-elastic grain force response. The whole granular system is density matched in salt solution, which guarantees an ideal 2D system without basal friction between the particles and the table. The viscosity is negligible at the very small shear strain rate (0.017 rpm). This talk will address two main points: i) how does the system reach a jammed state; ii) how does system reach a long term stable state and what are the properties of that state.

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