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Shear jamming in a two dimensional granular system without basal friction HU ZHENG, Tongji University, JOSHUA DIJKSMAN, ROBERT BEHRINGER, Duke University — Two dimensional granular systems are an important tool to explore the dynamics of granular materials. However, traditional experimental methods could not avoid the effects of friction between particles and the base on which they rest. Here, we develop a novel apparatus which allows us to tune the basal friction of the particles. We do so by submersing the particles in a density matched liquid, thus removing the normal force, hence the friction, between the particles and base. We use this technique to investigate the effect of shear jamming found by Bi et. al. (2011) by probing the overall shear stress, particle motion and the photoelastic response of the particles under simple shear.

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