

Abstract Submitted  
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**Sliding Friction on a 2D Photoelastic Granular Bed**<sup>1</sup> PEIDONG YU, ROBERT BEHRINGER, Duke University, LTB RESEARCH GROUP, DEPT. OF PHYSICS, DUKE UNIV. TEAM — We describe experiments to characterize the stick-slip nature of granular friction. In the experiment, a slider is pulled by a spring moving at constant speed across the top of a 2D granular bed of photoelastic particles confined to a vertical channel. The pulling force is measured synchronously with image acquisition of the granular bed taken by a camera moving along with the slider. Typical stick regimes yield a characteristic elasticity for the combined material and spring. From the known spring constant, we deduce the granular elasticity. Slip occurs when one or more force chains fail. On the basis of these observations, we develop a multi-spring model for the data.

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Peidong Yu  
Duke University

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