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Triggering and control of stick-slip friction SHMUEL M. RUBINSTEIN, GIL COHEN, JAY FINEBERG, Racah Institute of Physics, Hebrew University of Jerusalem — Even regular stick slip frictional sliding always has some stochasticity associated to it. This stochasticity appears as uncertainty in the period between consecutive slip events. We show that once harmonic perturbations are introduced to the shear loading this picture changes significantly. Even relatively small perturbations can trigger the slip instability causing it to occur at a specific phase of the perturbation. This triggering either eliminates the stochastic element completely, or constrains it so that the stick-slip periods differ by discrete multiples of the period perturbation.

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