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Stress avalanches in sheared granular materials SOMAYEH FARHADI, DLR, KARIN DAHMEN, University of Illinois at Urbana-Champaign — Granular systems, subject to external shear stress, deform plastically at the yield point, where stress is released in the form of avalanches. The sizes(strength) of stress avalanches show a broad range in magnitude and demonstrate scaling properties. Here, we perform MD simulation to study stress avalanches of granular materials. The systems are dense packings of both 2D and 3D Hertzian spheres (close to their jamming points). Both micro-structure of failure as well as global stress are measured throughout gradual shear steps. Finally, we compare mean-field predictions of an existing model of failure, with our simulation data.

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None

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