

Friction and fracture propagation in a granular media

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The simplest description of a tectonic fault is that of two solid blocks sliding on top of each other in a stick-slip motion. The instant just before the 'slip' part of the motion, the onset of sliding, has been shown to be caused by a propagating fracture front, which is well described by the theory of linear elastic fracture mechanics[1].

However, this theory does not take into account the shape of the asperities at the interface, as these asperities are hidden in a dissipative non-linear zone surrounding the fracture tip. The main objective of my research is to develop a more comprehensive description of this frictional phenomenon by performing experiments on a homogeneous solid-solid frictional interface locally perturbed by a granular heterogeneity.

Keywords : Friction, granular material, local disorder, heterogeneity, experimental physics.

Références

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