

PINNING OF A RUPTURE FRONT ON FAULT ASPERITIES

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We study the nucleation of an inplane rupture under mode I and mode II/III loading. We consider a model derived from linear perturbation analysis that retains only local radiation, creep and long term static elastic interactions. Beside the intrinsic limitations of the model, it provides a basic tool to study the dynamics of an inplane rupture front, at the onset of motion, in a heterogeneous elastic solid. We study the space-time correlations of the quake activity and observe lineations for creeping fault as recently observed for the San Andreas fault. The spatial distribution of the activity is shown to be controlled by the mechanical properties of the fault and not by the toughness heterogeneities.