

Universal aspects of acceleration process toward unstable fast rupture

*Takahiro Hatano¹

1. Earthquake Research Institute, University of Tokyo

In this talk, we will elaborate the acceleration process of unstable slip on a model of earthquake fault. based on an empirical friction law that has been verified in the lab scale, it is shown that slip velocity increases in a power law manner resembling the inverse Omori law. This acceleration process has been known empirically, and is derivable theoretically for a class of simple systems. We will show that this power-law acceleration is realized in a wider class of systems including non-planer faults and random brittle media. Analysis on a mean-field model indicates saddle node bifurcation is responsible for the power law behavior.

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