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**The Dynamics of Precursors to Frictional Sliding** JAY FINEBERG, SHMUEL RUBINSTEIN, GIL COHEN, The Hebrew University of Jerusalem — The dynamics of frictional motion are governed by the nature of the interface separating two sliding materials. We report that the spatial profile of the contact-area along an interface is a dynamic quantity which evolves via a discrete sequence of rapid crack-like precursors to overall motion. These precursors, which are generated at stress levels much lower than the critical stress for sliding, significantly modify the initially uniform contact area profile. Thus, when overall sliding finally occurs, the contact area is highly non-uniform in space. These results suggest a fundamentally new view of the processes leading to frictional motion with ramifications to earthquake dynamics and material failure.

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