Abstract Submitted
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Theory of charge-density-wave non-contact nanofriction[1] ERIO TOSATTI, SISSA, ICTP, CNR-IOM Democritos, FRANCO PELLEGRINI, SISSA, CNR-IOM Democritos, GIUSEPPE E. SANTORO, SISSA, ICTP, CNR-IOM Democritos — Bulk dissipation caused by charge-density-wave (CDW) voltage-induced depinning and sliding is a classic subject. We present a local, nanoscale mechanism describing the occurrence of distance-dependent dissipation in the dynamics of an atomic force microscope tip oscillating over the surface of a CDW material. A mechanical tip hysteresis is predicted in correspondence to localized 2 slips of the CDW phase, giving rise to large tip dissipation peaks at selected distances. Results of static and dynamic numerical simulations of the tip-surface interaction are believed to be relevant to recent experiments on the layer compound NbSe .

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