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Energy loss from repulsive contact to non-contact ERNST MEYER, ENRICO GNECCO, LAURENT NONY, LARS ZIMMERLI, SABINE MAIER, SIMON RAST, URS GYSIN, University of Basel, PATRIC RUFF, ROLAND BENNEWITZ, Mc Gill University — Force microscopy experiments under ultrahigh-vacuum conditions are performed at separations from repulsive contact up to separations of 200nm. Energy loss at rather large separations is primarily related to the application of electrostatic fields. The relationship of adsorbates and non-contact friction is investigated. The transition to the repulsive contact is studied by the use of torsional oscillations. In the regime of repulsive contact, the important role of instabilities is confirmed.

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