

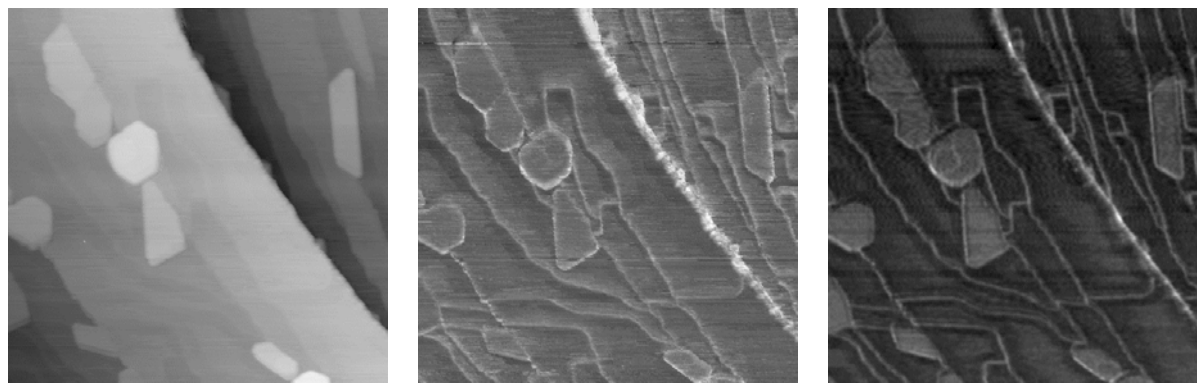
## Material contrast in torsional NC-AFM: PTCDA on KBr(001)

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The normal and torsional modes of a commercially available cantilever have been excited simultaneously. The frequency shift of the normal resonance frequency has been used to image the topography (left image). Simultaneously we monitored the dissipation of the normal and the torsional resonance. The damping of the torsional resonance measures the friction of the tip motion parallel to the surface. As a first example we investigated the change of friction on a heterogeneous surface consisting of 0.3 monolayers of 3,4,9,10-perylenetetracarboxylic-dianhydride (PTCDA) deposited on a KBr(001) substrate [1].

An increased signal for the dissipation on step edges is found for normal oscillation (middle image) as well as for lateral tip movement. However the dissipation in torsional mode reveals a difference between the bare KBr surface and the PTCDA-crystallites (right image). This change in dissipation is not found for the normal mode. The observed material contrast is a clear indication for Volmer-Weber growth of PTCDA on KBr(001).

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[1] T. Kunstmann et al., Phys. Rev. B **71**, 121403(R) (2005)