

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Quantitative analysis of scanning force microscopy data using harmonic models** THOMAS HENZE, KLAUS SCHROETER, ALBRECHT PETZOLD, THOMAS THURN-ALBRECHT, Institute of Physics, Martin-Luther-University Halle-Wittenberg, D-06099 Halle, Germany — The separate identification of dissipative and elastic force contributions in Atomic Force Microscopy (AFM) is discussed. We show that within a harmonic approximation the interaction of the AFM tip with the sample surface can be described by average interaction parameters, namely an effective elastic tip-sample interaction  $k_{ts}$  and an effective dissipation  $\alpha_{ts}$ , which can be extracted in a simple way from measured data. The method is applied to force spectroscopy curves on hard and soft polymeric model surfaces. The approach enables a thorough discussion of the influence of experimental parameters on the measured data. In imaging a clear identification of phases in systems with hard-soft contrast as for instance in semicrystalline polymers is made possible.

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Date submitted: 01 Dec 2008

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