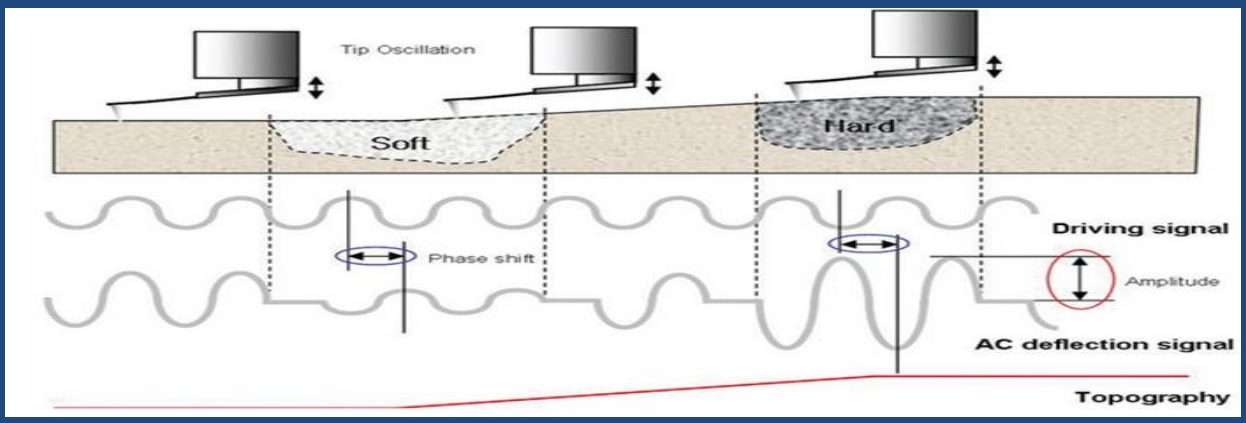
FORCE MODULATION MICROSCOPY (FMM)

Study elastic properties of your sample as well as topographic features by ARA-MFM

FMM a fantastic mode of ARA-AFM useful to characterize elastic properties of various materials. This feature allow you to differentiate boundaries of material change on the sample. Applying a dithering periodic signal to the cantilever in contact mode causes amplitude variations according to material elasticity during scanning..



The frequency of the applied signal is typically a few kilohertz which is faster than the z feedback loop. Topographic information can be separated from local variations in the samples elastic properties .

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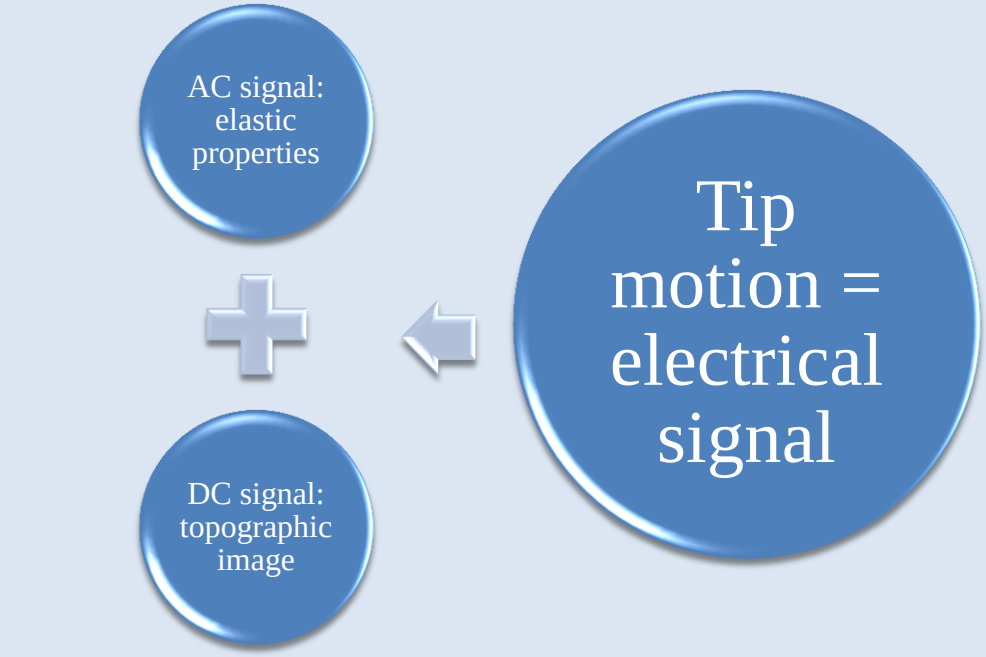

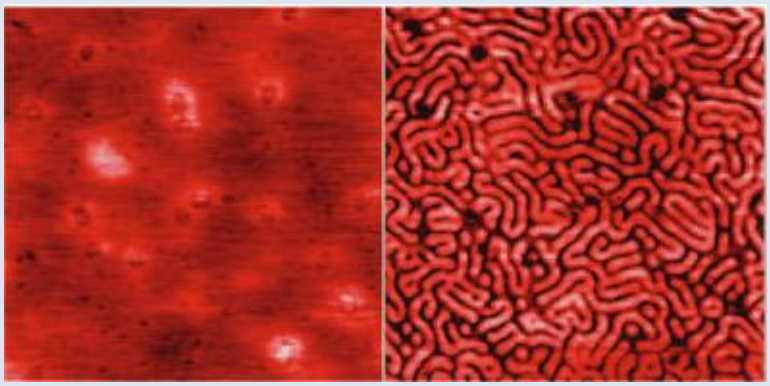

Contact mode topography (left) and force modulation image (right) of a two-phase block copolymer. The softer, the more compliant component of the polymer maps in black.

Applications:

- Detect variations in the mechanical properties of the sample surface such as surface elasticity, adhesion, and friction.
- Locating transitions between different components in composites, rubber, and polymer blends.