NSS
NanoScience Solutions

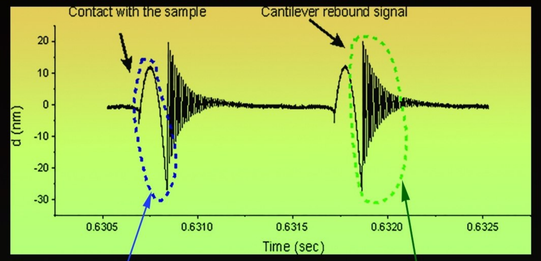
Ringing Mode

a novel extension mode for atomic force microscopy to map new physical properties faster and with less artifacts

AFM + Ringing mode = Discovery

Technology

The raw AFM signal, cantilever deflection observed in sub-resonant modes is shown below:

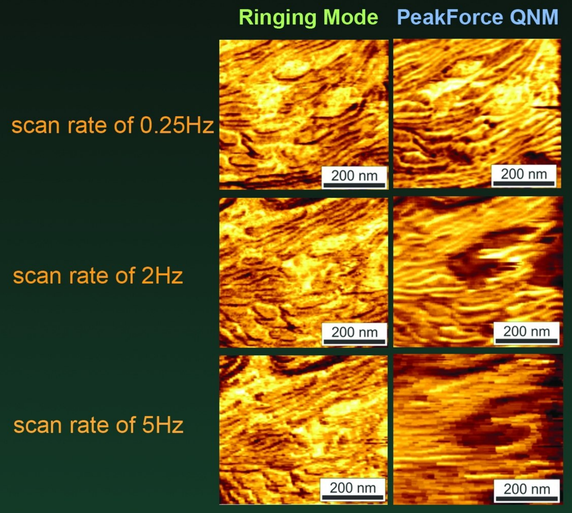


The existing sub-resonant modes use this part of the signal.

The signal used in **Ringing Mode** is presently filtered out in almost all sub-resonant modes.

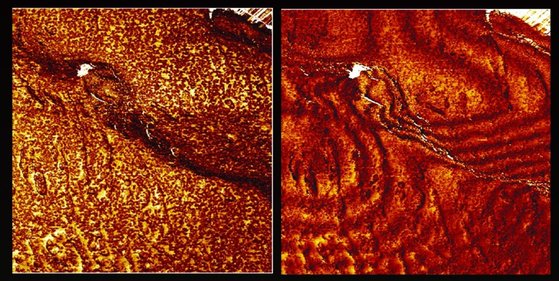
Faster

A two-polymer blend is imaged in PeakForce QNM and Ringing Mode simultaneously. The scanning speed ranges from 0.25Hz to 5Hz. One can see geradation of the PeakForce images while the Ringing mode images remain artifact-free.



2x2 μm² AFM adhesion image of two polymer blend.

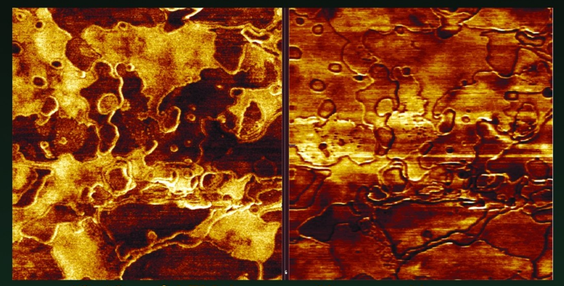
Less artifacts



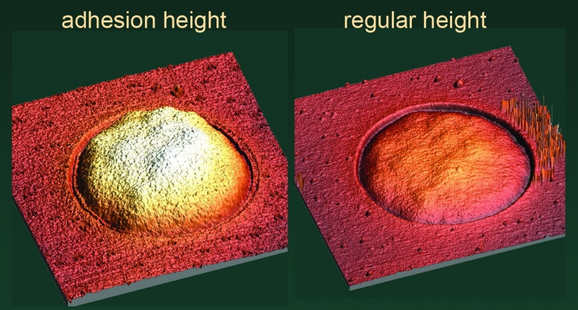
10x10 μm² AFM adhesion image of a cell. Interference artifacts are clearly seen on the PeakForce QNM image.

Novel imaging channels

reveal new information about sample



10x10 μm² AFM images of human skin cornea.



2x2 μm² AFM images of two polymer blend.

Ringing Mode™ works with any sub-resonant mode, including ScanAssyst™, PeakForceQMN™, HybriD™, Pulsed Force Mode, and other commercial modes. It works in air and in liquids. Compared to those modes, the Ringing Mode™

1. Drastically increases imaging speed
   20x demonstrated for the restored adhesion on polymers compared to PeakForceQMN.

2. Gives up to 8 additional novel information channels, such as:
   - ♦ Pull-off Neck Size,
   - ♦ Adhesion Height,
   - ♦ Disconnection Energy Loss.

   See our website for the full list of channels.

3. Demonstrates less imaging artifacts
   see an example of interference artifact inside this brochure.

4. Produces less noise
   due to multiple averaging of the recorded signal.

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