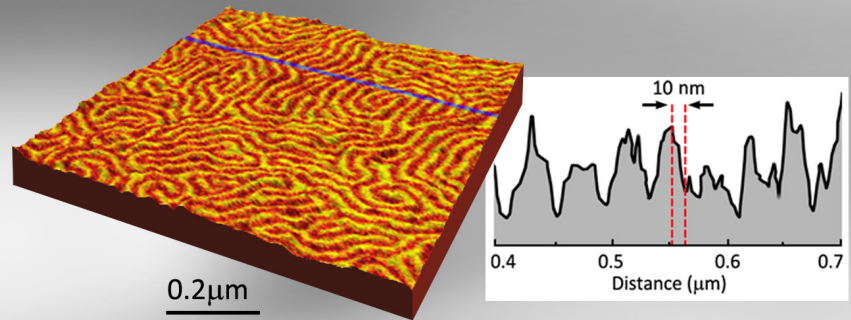


10 nm resolution nanoscale IR imaging with Tapping AFM-IR

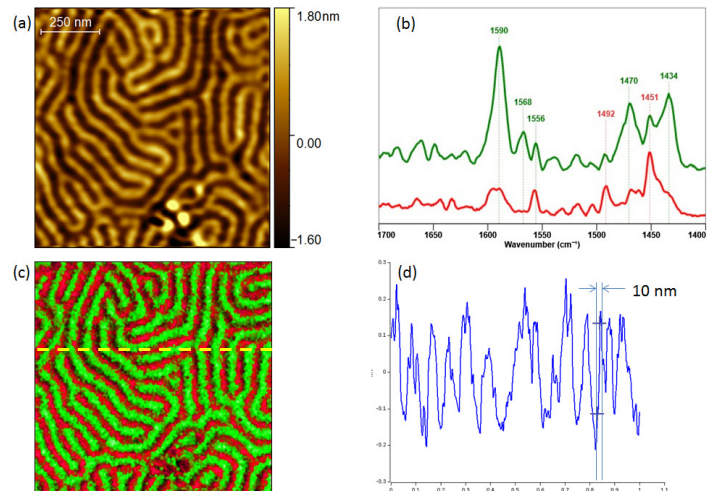


The Tapping AFM-IR image at 1730 cm^{-1} (a) demonstrates 10 nm resolution chemical mapping of the PS/PMMA block copolymer (b).

The Anasys Instruments new patented **Tapping AFM-IR** mode is the most advanced development in nanoscale IR technology, providing the highest spatial resolution for chemical imaging, enabling monolayer measurement sensitivity and extends the applications of nanoIR to a broader range of samples.

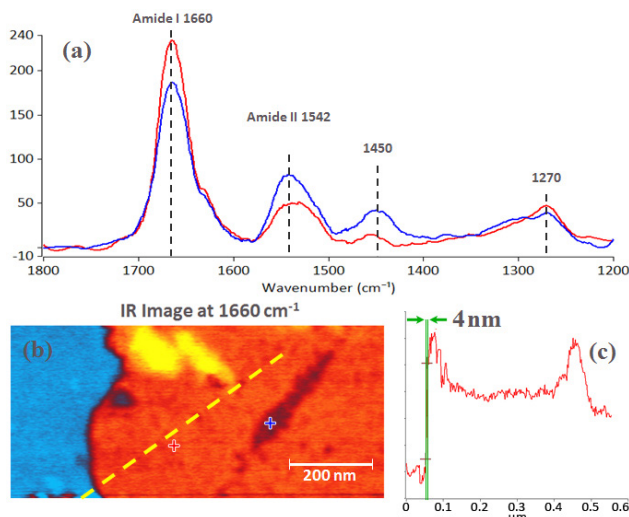
By extending Anasys Instruments patented Resonance Enhanced **AFM-IR** technique to include tapping mode operation, **Tapping AFM-IR** extends the boundaries of performance for nanoscale IR spectroscopy.

Additionally, the combination of **Tapping AFM-IR** and patented **FASTspectra** capability provides users with the most advanced, highest performance nanoscale IR spectroscopy capability with direct correlation to FTIR libraries.



Chemical characterization of PS-P2VP block co-polymer sample by Tapping AFM-IR. (a) Tapping AFM height image. (b) Tapping AFM-IR spectra clearly identifying each chemical component. (c) Tapping AFM-IR overlay image highlighting both components (PS@ 1492 and P2VP@ 1588). (d) Profile cross section highlighting the achievable spatial resolution, 10 nm.

Sample courtesy of Dr. Gilles Pecastaings and Antoine Segolene at University of Bordeaux



(a) AFM-IR spectra of various locations on a monolayer bacterial membrane. (b) Tapping AFM-IR collected at the amide 1 band showing variations in protein orientation due to the polarization dependent absorption of the incident light. (c) Profile cross section highlighting achieved spatial resolution, 4 nm.

High resolution, high sensitivity

Tapping AFM-IR has patented features that enhance the resolution of measurement to resolve chemical features down to 10 nm. For many applications, **Tapping AFM-IR** is now only limited by the resolution of the probe. Resonance enhanced **AFM-IR** has continually demonstrated monolayer sensitivity to enable chemical analysis on the thinnest of surface layers.

High speed chemical imaging - 10x faster

Tapping AFM-IR improves typical chemical imaging speed by 10x without loss of performance, so you can achieve high resolution imaging faster or choose to take more data in the same amount time.

Highest performance spectroscopy and imaging

The combination of **Tapping AFM-IR** and **FASTspectra** provide the highest performance available for nanoscale IR Spectroscopy, extending the boundary to make new discoveries. **FASTspectra AFM-IR** spectroscopy is simply the most powerful nanoscale IR spectroscopy capability available. It has excellent spectral resolution, ultra-low signal to noise and high sensitivity, delivering rich detailed spectra that directly correlate to transmission based FTIR.

Direct correlation to FTIR enabling nanoscale FTIR

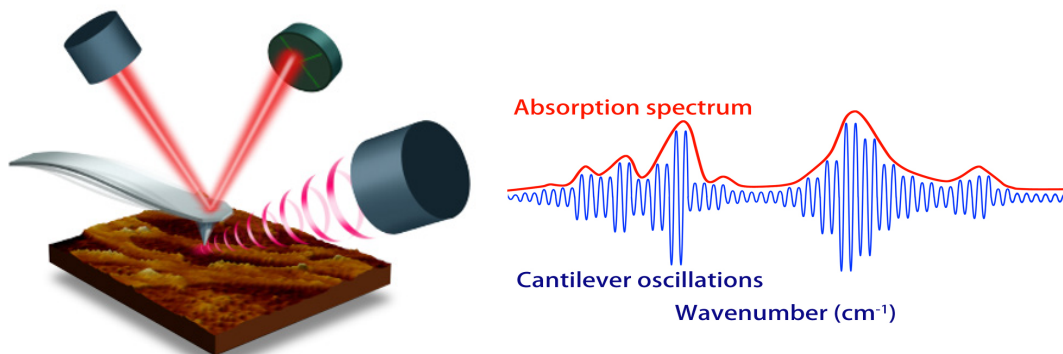
Due to its unique method, **AFM-IR** provides direct correlation to FTIR, providing nanoscale FTIR capability. The spectra are of the highest quality and provide unparalleled detail used by spectroscopists to identify any component under measurement. This enables users to utilize traditional FTIR database libraries to identify components.

New applications

Tapping AFM-IR addresses a broad range of material types, and extends capabilities into beyond those most suited by contact mode. New research possibilities are now available in a wide range of areas such as life sciences, nanoparticles and soft polymer materials due to its softer measurement approach.

Advanced capabilities, easy operation

Tapping based AFM is the most utilized imaging mode in the AFM community, is well adopted and requires minimal operator training for topographic imaging. Anasys has extended this ease of use into high resolution chemical imaging to minimize operator training times and improve time to data.



Resonance enhanced AFM-IR provides direct correlation to bulk FTIR spectra, enabling nanoscale FTIR.

Contact us today to see how nano**IR** spectroscopy can benefit your research.



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<http://www.anasysinstruments.com/products/nanoIR2-FS/>
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