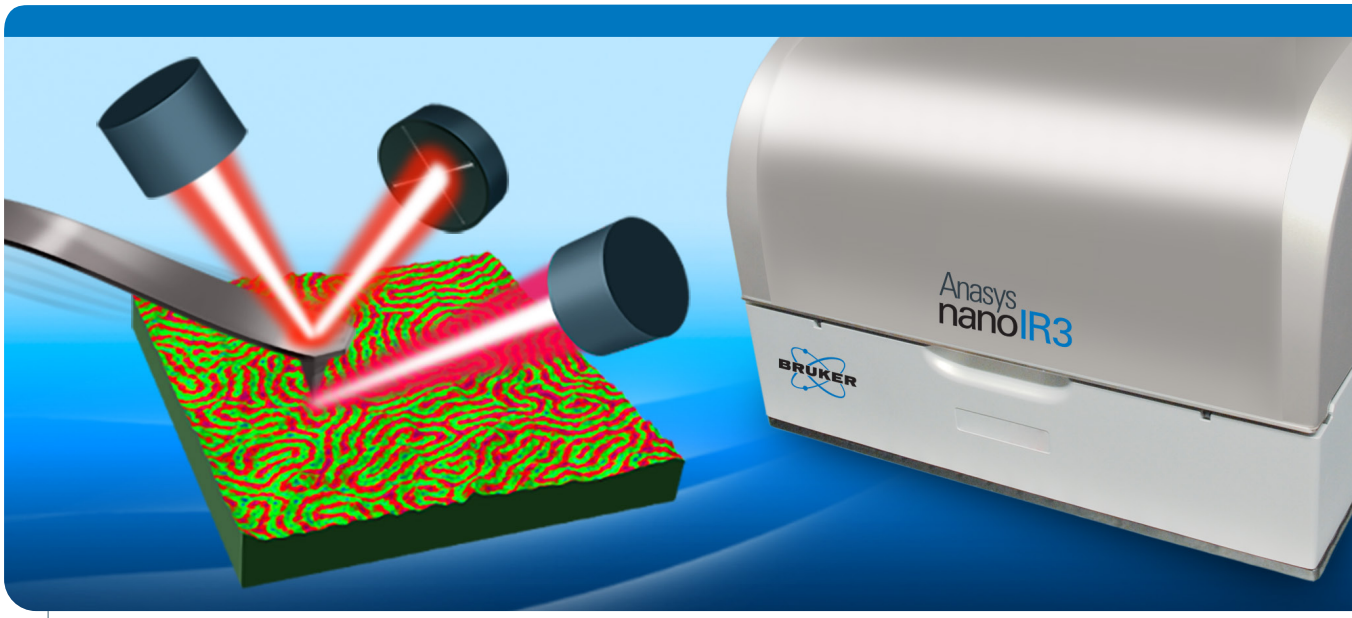


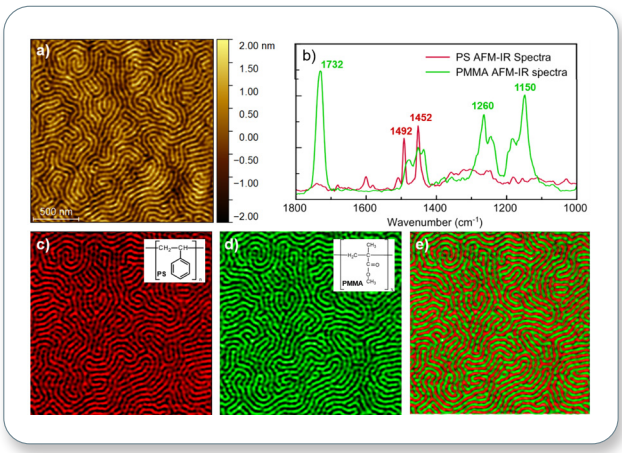
nanoIR3 Nanoscale IR Spectroscopy

Highest Performance Sub-10 nm Resolution NanoIR Spectroscopy

Atomic force microscopy-based infrared spectroscopy (AFM-IR) uses an AFM probe to locally detect sample thermal expansion from absorption of infrared radiation. Thus, it can uniquely provide infrared (IR) spectroscopy and chemical analysis imaging capabilities with the high spatial resolution of AFM, breaking the diffraction limit associated with IR spectroscopy and directly correlating to FTIR techniques. Incorporating proprietary technology and building upon years of industry-leading AFM-IR instrument development, the new Anasys nanoIR3 is the highest performance nanoscale IR spectroscopy, chemical imaging, and materials property mapping system available today for materials and life science applications.

Nanoscale nanoIR3 spectroscopy provides rich, high-quality spectra:

- Matches industry FTIR databases
- Sub-10nm chemical imaging resolution
- HYPERspectral imaging for 3D spectroscopy and imaging
- Environmental control options for in-situ nanoIR
- Nanoscale material property mapping



Chemical characterization of PS-co-PMMA 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 at 1492 and PMMA at 1588); and (d) Profile cross section highlighting the achievable spatial resolution, 10 nm. Sample courtesy of Dr. Gilles Pecastaings and Antoine Segolene at University of Bordeaux.

Nanoscale IR Spectroscopy — High-Performance Monolayer Sensitivity

Bruker's proprietary Resonance-Enhanced AFM-IR mode provides the highest performance, rich, high-quality spectra to help identify materials at the nanoscale and better understand material changes and composition. From thin films to monolayers, Resonance-Enhanced AFM-IR is the most sensitive technique for nanoscale spectroscopy of organic materials.

Matches Industry FTIR Databases

The nanoIR3 provides high-quality IR spectra that can be exported to industry FTIR databases to identify sample components. The system data is compatible with most popular industry IR databases.

Tapping AFM-IR Sub-10 nm Chemical Imaging

Our patented Tapping AFM-IR imaging technique creates chemical mapping of the highest spatial resolution, while providing high-quality IR spectroscopy. Whether your goal is creating chemical composition maps of polymers, thin films, monolayers, or small, thin contaminants, obtaining high-resolution chemical imaging is easy and fast with Tapping AFM-IR.

HYPERspectra Laser Technology Covers Broadest IR Range

Bruker's HYPERspectra laser technology extends Resonance-Enhanced AFM-IR to the broadest spectroscopic range (including the OH, C-H stretch and N-H stretch regions). This exclusive technology sets new standards of chemical resolution and monolayer sensitivity for a broader range of applications, while still providing unrivalled, direct correlation to FTIR at the nanoscale.

Complete Nanoscale FTIR Characterization

The nanoIR3 provides a comprehensive set of capabilities for nanoscale characterization. The unique POINTspectra feature provides both point spectroscopy and chemical imaging with a single laser source, enabling faster time to data and, ultimately, a more cost-effective research solution. Hyperspectral Imaging provides the ability to create a 3D spectral map of the surface within to help identify unknowns and export for additional processing.

Bruker Nano Surfaces Division

Santa Barbara, CA • USA
Phone +1.866.262.4040
productinfo@bruker.com

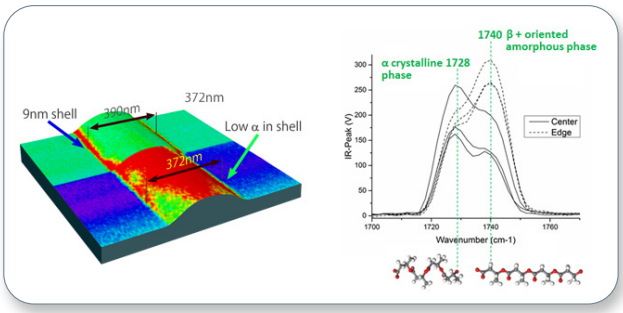
www.bruker.com/nanoIR

Environmental Control

The nanoIR3 provides capability for sample heating and cooling with humidity or various gases control for in-situ AFM-IR with environmental control.

Nanoscale material property mapping

An integrated, fully featured AFM provides unique material property mapping capabilities with thermal, mechanical, and electrical modes to support unique multimodal characterization of a wide range of materials science and life science applications.



nanoIR measurements on polymer nano fibers.
Courtesy of John Rabolt et al, University of Delaware.

Specifications

Standard AFM-IR modes	Resonance-Enhanced AFM-IR for spectroscopy; Tapping AFM-IR imaging and spectroscopy; Resonance-Enhanced FASTmapping Imaging; HYPERspectral AFM-IR for imaging and spectroscopy with both Tapping AFM-IR and Resonance-Enhanced AFM-IR
IR spectroscopy range	HYPERspectra QCL: 950 to 1900 cm^{-1} (Range is configurable to 800 cm^{-1}); FASTspectra OPO: 2710 to 3600 cm^{-1}; Hyperspectral QCL option: 1900 to 2600 cm^{-1}
Environmental control	Environmental enclosure; Heater/cooler; Fluid imaging accessory
Standard imaging modes	Tapping; Phase Imaging; Contact; Lateral Force; Force Curves; Force Modulation; EFM/MFM
Optional imaging modes	nanoTA; SThM; CAFM; KPFM; Lorentz Contact Resonance
XYZ scan range	50 µm x 50 µm x 6 µm