nanoIR3-s Broadband

- Nanoscale FTIR Spectroscopy and s-SNOM Imaging

Bruker's nanoIR3-s Broadband is the most advanced s-SNOM based nanoscale FTIR spectroscopy system providing the broadest available spectral range (670 to 4000 cm^{-1}) with high-resolution nanochemical and nano-optical imaging capabilities. The system combines the industry-leading Anasys nanoIR3-s platform with the latest OPO/DFG femtosecond laser technology, resulting in unmatched levels of performance, integration, and flexibility.

The nanoIR3-s Broadband Features:

- Broadest available spectral range for spectroscopy and high-resolution nanochemical imaging
- Highest performance spectroscopy and imaging for 2D/graphene materials
- Nanoscale material property mapping and sample environmental control options

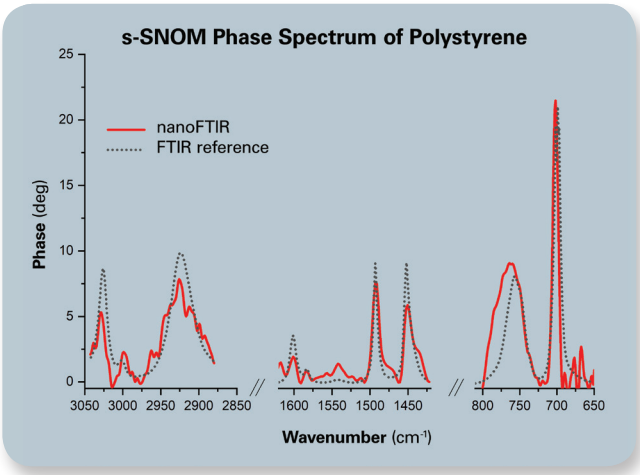

Figure 1. First data showing s-SNOM based phase spectra of polystyrene across the broad IR range, including coverage from 2000 cm^{-1} to 4000 cm^{-1}.

Nanoscale FTIR Spectroscopy for 2D Materials

Researchers can now utilize the nanoIR3-s Broadband system's unique capabilities to make new discoveries in a broad range of research areas, including 2D materials, biological samples, catalysis-based applications, and polymeric materials in spectral regions not previously accessed before.

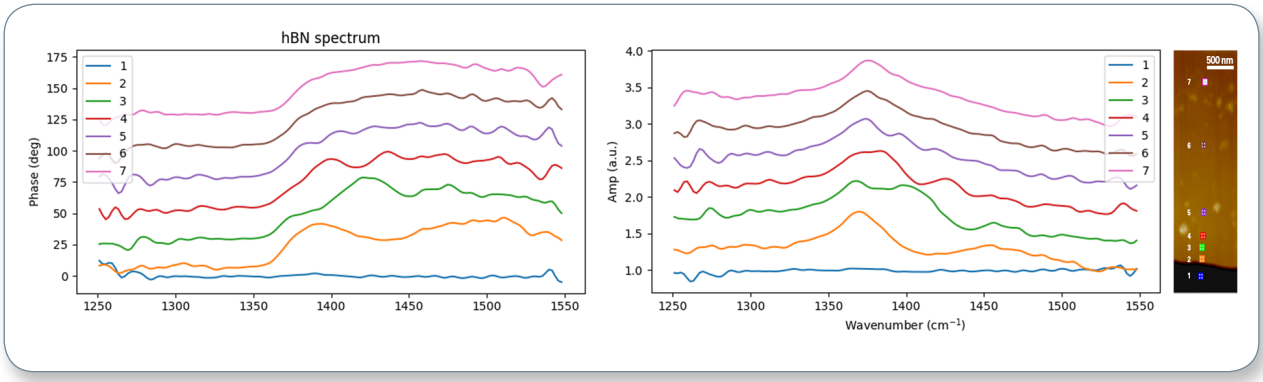

Figure 2. Spectroscopy of hBN showing phase (left) and amplitude (center) at different sample locations in the topography image (right).

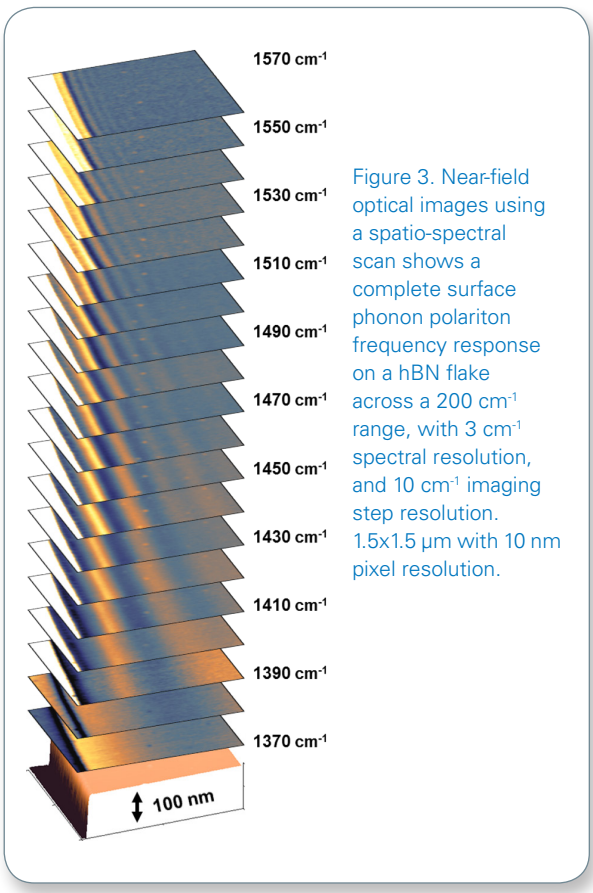

Figure 3. Near-field optical images using a spatio-spectral scan shows a complete surface phonon polariton frequency response on a hBN flake across a 200 cm^{-1} range, with 3 cm^{-1} spectral resolution, and 10 cm^{-1} imaging step resolution. 1.5x1.5 µm with 10 nm pixel resolution.

Complementary High-Resolution Imaging

High-quality, high-resolution nano-optical images can be generated for characterization of a wide range of optical phenomena, such as graphene plamonics and surface phonon polaritons in hexagonal boron nitride (hBN), and chemical imaging of biological and other organic samples.

nanoIR3-s Broadband Specifications

nanoFTIR Spectroscopy Broadband	670 to 4,000 cm^{-1} (2.5 to 15 µm) spectral range
s-SNOM Chemical Imaging	670 to 2000 cm^{-1} (5 to 15 µm) imaging range; single-wavelength IR imaging
AFM-IR Spectroscopy and Imaging Modes (Optional)	Tapping AFM-IR; Resonance Enhanced
Optional Property Mapping Modes	Nanoscale thermal analysis (nano-TA); scanning thermal microscopy (SThM); conductive AFM (CAFM); Kelvin probe force microscopy (KPFM); Lorentz contact resonance (LCR)

Bruker Nano Surfaces Division

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

www.bruker.com/nanoIR