

Scanning Near-field Optical Microscope AlphaSNOM

3 Microscopes - one Instrument

The AlphaSNOM combines in a unique way the advantages of Scanning Near-field Optical Microscopy (SNOM), Confocal Microscopy and Atomic Force Microscopy (AFM) in a single instrument.

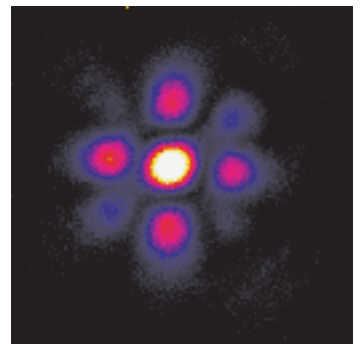
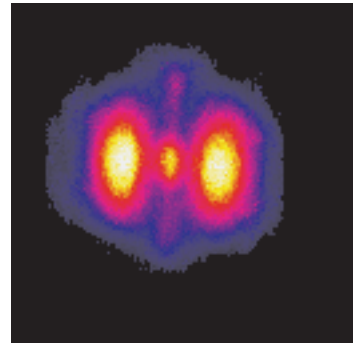
Scanning Near-field Optical Microscopy allows optical microscopy with highest spatial resolution beyond the diffraction limit.

precise
versatile
easy to use



Scanning Near-field Optical Microscopy of Vertical Cavity Surface Emitting Lasers (VCSEL). Samples courtesy of K.S. Ebeling, Universität Ulm.

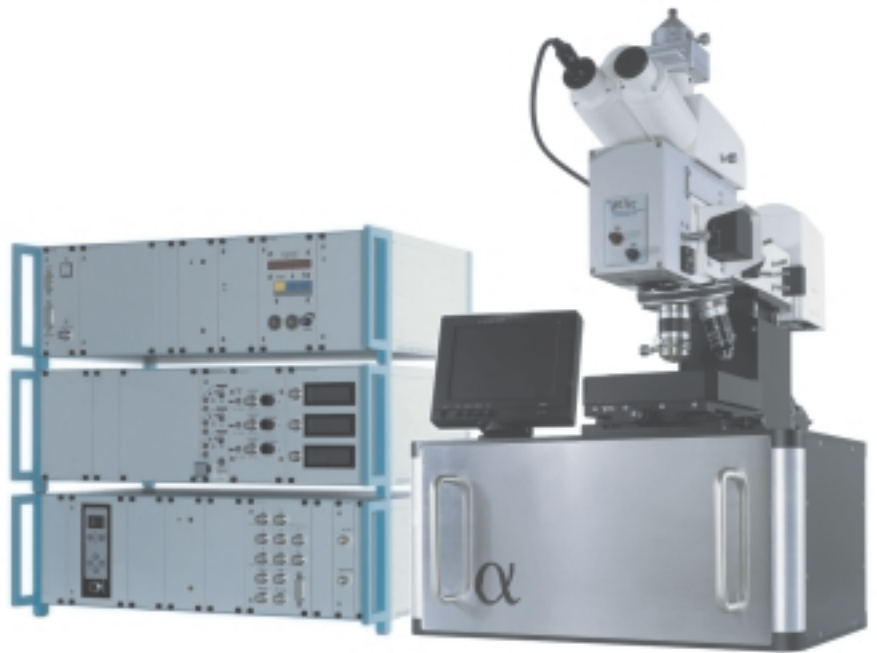
*Upper image: integrated intensity.
Lower image: intensity distribution of the LP₂₁ transverse mode at 804,68 nm, scan range 15 μm.*



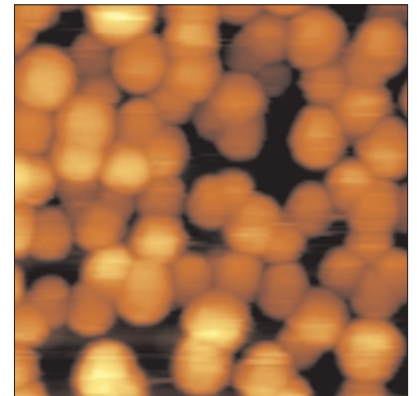
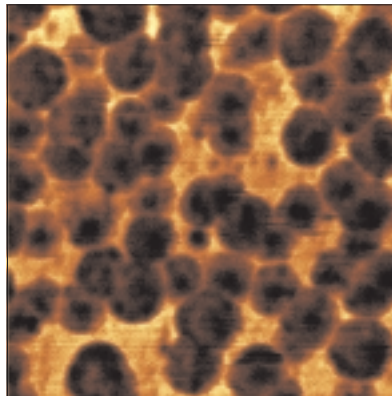
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The AlphaSNOM uses micro-machined cantilever SNOM sensors. These unique sensors are integrated into a 30 mm diameter objective (SNOM-Objective). By simply turning the turret of the microscope the user can easily switch from Confocal to Nearfield Microscopy.

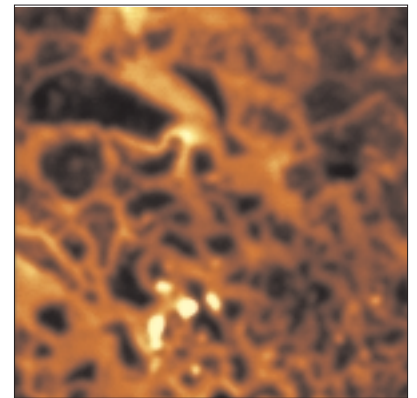
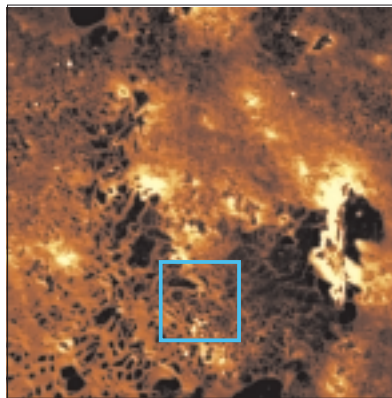
This allows fast confocal overview scans as well as high resolution SNOM imaging. Using standard AFM tips all capabilities of Atomic Force Microscopy are accessible.



SNOM fluorescence images of a spin-coated polymer blend (PS/PMMA, 1:1) labelled with Rhodamine 6G. Right image is topography, the left image shows the fluorescence intensity, scan range 8 μm (raw data, no image processing).



Confocal fluorescence images of a supramolecular polymer (perylene-tetracarboxylic acid) labelled with RG590. Excitation was done with a green He-Ne laser ($\lambda = 543 \text{ nm}$), detection at $\lambda > 590 \text{ nm}$. Objective for excitation: Zeiss Plan Neofluar 40x /0.75. Objective for detection: Nikon Plan Apo 60x /0.85. Left image 100 μm scan, right image 20 μm zoom.



Supramolecular polymer samples courtesy of F. Würthner, Universität Ulm (see also Chem. Eur. J. 2000, 6, No. 21, page 3871-3886).