

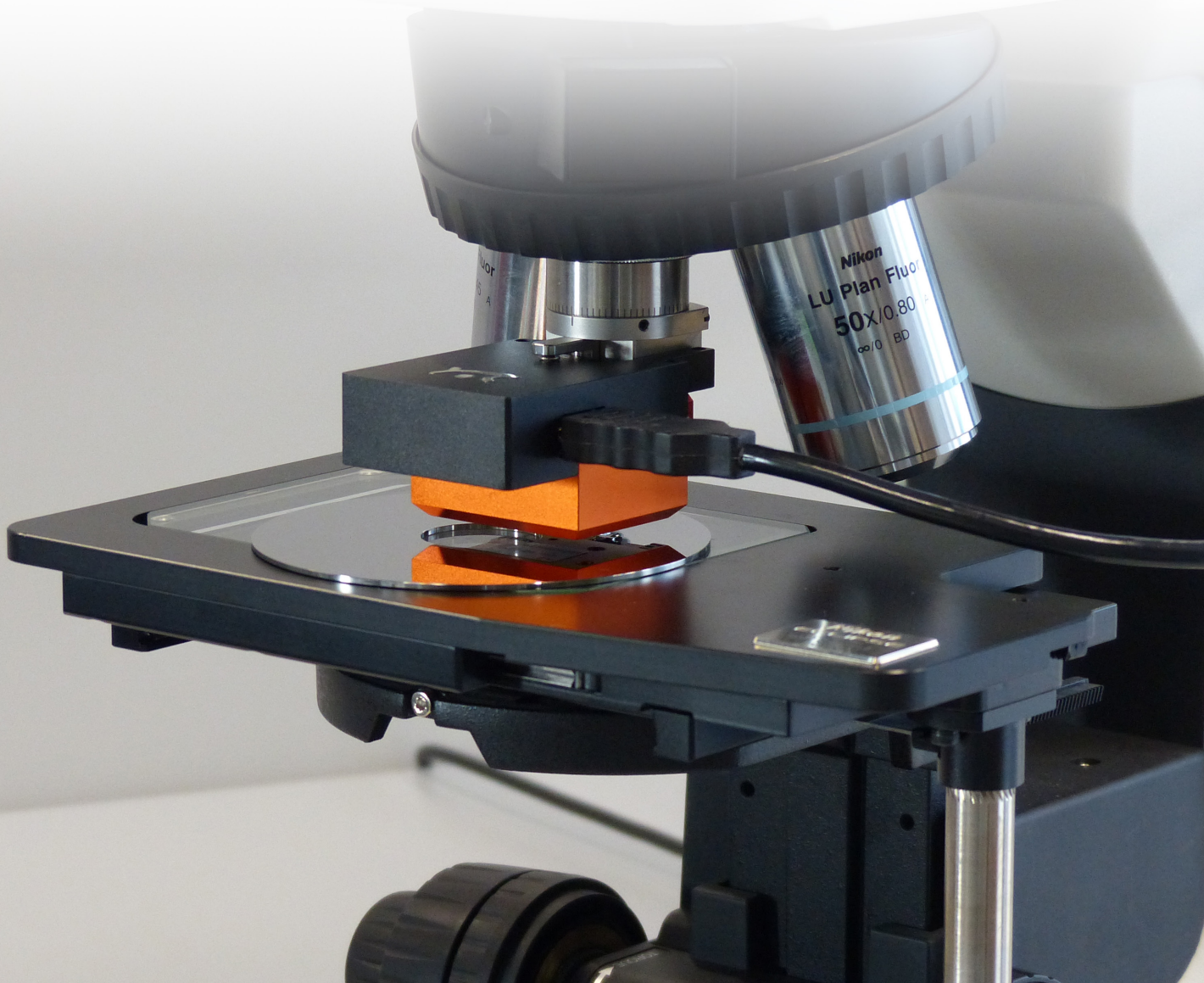
LensAFM

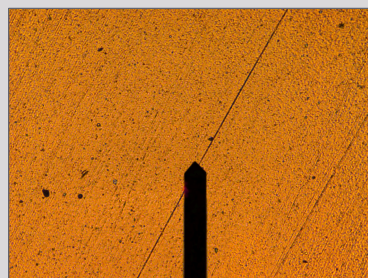
AFM for upright microscopes and 3D profilometers

Nanometer resolution

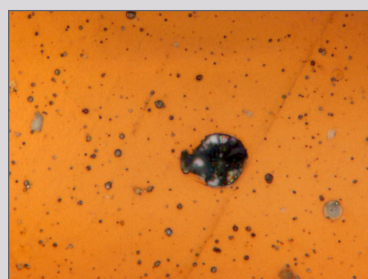
3-D surface structure data

Material property information

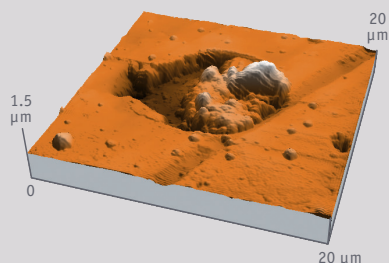




Defects in a hard-coated metal surface as observed through the LensAFM's built-in 8x objective lens. The AFM cantilever is visible in the optical image and allows easy positioning of the sample before measurement.



Close-up of the area directly above the cantilever as observed through a 100x microscope objective lens (NA 0.9). A defect is observed, but its nature and exact structure remain unclear.



AFM topograph of the same defect recorded by the LensAFM. 3D data of the area clearly identify the defect as a hole in the coating layer, partially filled with debris. Such data is used to improve the coating process and to measure the quality of the result.

LensAFM — AFM for upright microscopes and 3D profilometers

The Nanosurf LensAFM is an atomic force microscope that can be used instead of a normal objective lens on almost any optical microscope or profilometer. It greatly extends the resolution and measuring capabilities of these instruments. The LensAFM not only provides 3D surface topography information, but can be used to analyze various physical properties of a measurement sample as well.

Key Features

- Mountable on virtually any optical microscope or 3D optical profilometer
- Equipped with an objective lens for a clear view of sample and cantilever
- Simple sample positioning using the optical microscope position manipulators
- Integrated motor for automated cantilever approach: Just bring your sample into optical focus and let the LensAFM do the rest
- Large AFM Z-range allows measurement of high structures
- Wide range of AFM modes available through the C3000 controller
- Simply intuitive: Nanosurf's well-known "ease of use" will have you performing measurements in minutes!

Applications

- Roughness measurements
- Defect analysis
- Sharp edge radius
- Step heights

- Material properties:
 - hardness variations
 - conductance/resistance
 - magnetism

Areas

- Research and Development
- Teaching and Training
- Quality Assurance

LensAFM scan head specifications

Scan head type	110-μm	70-μm
Maximum scan range (XY) ^(1,2)	110 μm	70 μm
Maximum Z-range ⁽¹⁾	22 μm	14 μm
XY-linearity mean error	< 0.6%	< 1.2%
Z-measurement noise level (RMS, Static mode) ⁽³⁾	typ. 350 pm (max. 500 pm)	
Z-measurement noise level (RMS, Dynamic mode) ⁽³⁾	typ. 90 pm (max. 150 pm)	
Automatic sample approach	Built-in motorized parallel approach with 4.5 mm travel	
Cantilever alignment	Automatic self-adjustment through alignment chip technology	
Sample observation ⁽⁴⁾	Built-in 8x objective lens with 45 or 60 mm parfocal distance	
AFM measurement repositioning precision	±10 μm (including cantilever exchange, scan head remounting, and approach)	

⁽¹⁾ Manufacturing tolerances are ±10% for 110-μm scan heads and ±15% for 70-μm scan heads

⁽²⁾ Maximum scan range at 45° rotation of the AFM scan direction

⁽³⁾ Measured using the C3000 controller, with active vibration isolation on a stable desk, and in a low-noise laboratory environment (no air conditioning)

⁽⁴⁾ Adapters with a correct parfocal distance are available for the different optical microscope types

Compatible options and accessories

Advanced C3000 measurement modes

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