



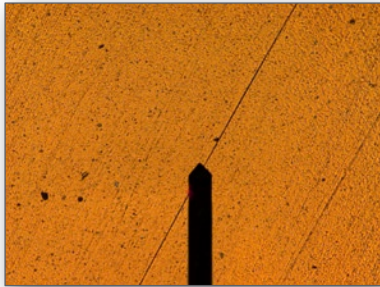
Nanosurf LensAFM

Enhance Your Optical Microscope or Profilometer



Atomic Force Microscope capabilities:

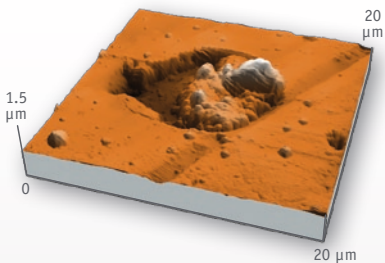
- Visualize your samples with nanometer resolution
- Obtain 3-dimensional surface structure data
- Access material property information



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.



A powerful add-on to optical microscopes or 3D profilometers

The Nanosurf LensAFM is an atomic force microscope that can be used in place 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.

Main features of the LensAFM:

- 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 your optical microscope's 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 modular easyScan 2 controller.
- Simply intuitive: Nanosurf's well-known "ease of use" will have you performing measurements in minutes!

Applications	Material properties:	Areas
<ul style="list-style-type: none"> • Roughness measurements • Defect analysis • Sharp edge radius • Step heights 	<ul style="list-style-type: none"> – hardness variations – conductance/resistance – magnetism 	<ul style="list-style-type: none"> • Research and Development • Teaching and Training • Quality Assurance

LensAFM Scan Head Specifications	
Maximum scan range (XY) ⁽¹⁾	70 μm (switchable to 110 μm ⁽²⁾ for extended scan range)
Maximum Z-range ⁽¹⁾	22 μm
Drive resolution XY / Z ⁽³⁾	1.7 nm / 0.34 nm
XY-linearity mean error	< 0.6%
Z-measurement noise level (RMS, Static mode) ⁽⁴⁾	0.4 nm (max. 0.55 nm)
Z-measurement noise level (RMS, Dynamic mode) ⁽⁴⁾	0.3 nm (max. 0.55 nm)
Automatic sample approach	Built-in motorized parallel approach with 4.5 mm travel
Cantilever alignment	Automatic self-adjustment through alignment chip technology
Sample observation	Built-in 8x objective lens with 45 or 60 mm parfocal distance ⁽⁵⁾
AFM measurement repositioning precision	±10 μm (including cantilever exchange, scan head remounting and approach)

⁽¹⁾ Manufacturing tolerances are ±10%
⁽²⁾ At 45° rotation of the AFM scan direction
⁽³⁾ Calculated by dividing the maximum range by 16 bits
⁽⁴⁾ With active vibration isolation on a stable desk and in a low noise laboratory environment (no air conditioning)
⁽⁵⁾ Adapters with a correct parfocal distance are available for the different optical microscope types

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