

CCHR High-Resolution AFM Probe

Maximum resolution, stability and long-term performance

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Carbon Design Innovations

Overview

Carbon Design Innovations' (CDI) carbon core high-resolution probes (CCHR) for atomic force microscopy (AFM) start with a core carbon nanotube (CNT) that is straightened and stabilized with CDI's patented manufacturing processes. The result is a CNT probe with maximum resolution, imaging lifetime and stability.

The CCHR high-resolution CNT AFM probes are designed for detailed imaging in metrology and materials science applications. The standard CNT probe length is 500nm, with the exposed CNT tip <200nm.

The CDI Difference

Carbon Nanotube (CNT) probes can offer more robust material properties than traditional silicon probes. CDI's CNT AFM probes are not brittle and do not wear down as rapidly as silicon probes allowing for greater than 10x longer imaging lifetime.

CCHR probes have true multiwalled carbon nanotubes (MWCNTs) that are securely mounted, perfectly straight, and normal to the imaging surface. CDI uses MWCNTs for its probes to ensure the probe is extremely tough. CDI proprietary processes securely attach the CNT to the cantilever and re-enforce the base attachment to ensure that the CNT is firmly mounted. CDI technology allows the manufacture of probes with all the advantages of a CNT tip and the stability and familiarity of a silicon cantilever.

Benefits

- Stabilized, robust CNT probe on a standard cantilever
- High-resolution CNT tip with the convenience of a silicon cantilever
- Longer lifetime allows users compare samples with the same probe with no loss of resolution
- Reduced breakage, wear and contamination
- Precise length, diameter and angle deliver consistent probe-to-probe results

Features

- Overall CNT length: <500nm, Exposed CNT length: < 200nm
- Proprietary stabilization coatings
- Imaging lifetime >10x that of silicon probes
- Available on any cantilever of your choice. CDI uses Applied Nanostructures ANSCM-PT as standard.

CCHR Cantilever Characteristics

- CNT diameter nominally 20nm
- Effective radius of curvature nominally 5nm (unsharpened)
- Aspect Ratio > 5:1
- Angular Displacement nominally 0°
- Variable spring constants available

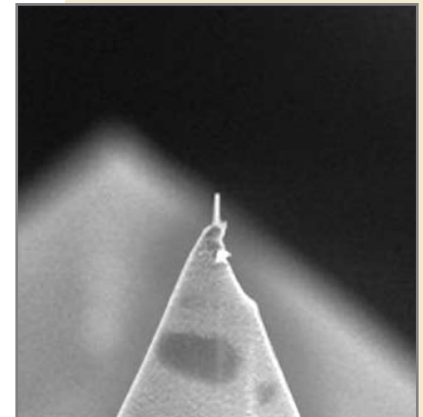
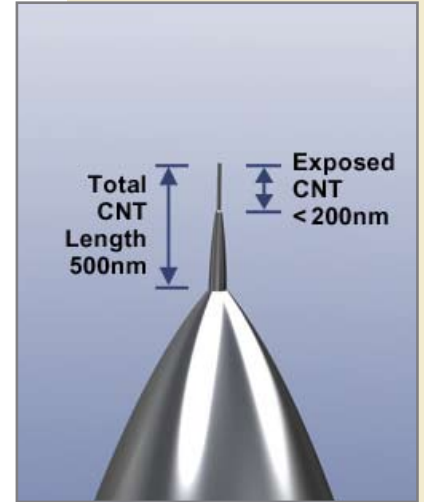
Customization

CDI's high-aspect ratio probes are widely applicable for most non-contact (tapping) mode AFM applications. Proprietary coatings and other custom processes are available.

Talk to us about customizing a tip set for your specialized application.

Applications

- Surface Roughness
- Scanning Conductance Microscopy
- Force modulation



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Specifications are subject to change without notice.

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