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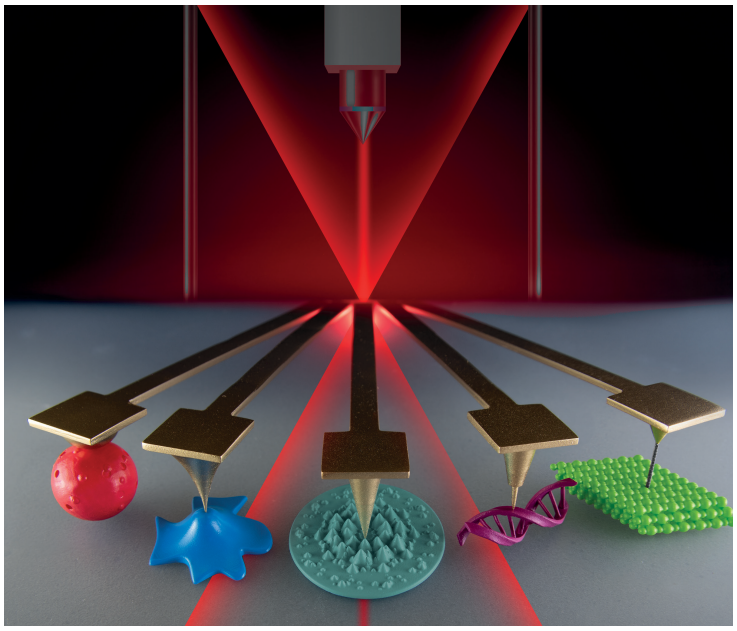
جامعة نيويورك أبوظبي
NYU ABU DHABI

RESEARCH MARKETING SUMMARY

Three-dimensional Multipurpose Scanning Microscopy Probes



Novel technology revolutionizes scanning probe microscopy

SUMMARY

Atomic force microscopy (AFM) revolutionized science by enabling nanoscale analysis of materials and biological systems, with the market projected to exceed $1 billion by 2030. Traditional AFM probes suffer from significant limitations in resolution and versatility. Current probes are costly to manufacture and are often designed for single-use purposes, making them not adaptable for complex geometries. This restricts their application in rapidly evolving research areas like biomedical diagnostics, cellular imaging, and nano-engineering.

NYUAD scientists have developed customizable, three-dimensional, high-resolution probe tips that can be tailored to a variety of scanning microscopy techniques. The probes are made from SU8 epoxy-based resin, further enhanced with nanomaterials like carbon nanotubes to improve durability and sensitivity. This solution offers distinct advantages over existing probes.

VALUE PROPOSITION

Versatility
The probes are designed for multipurpose use in various scanning microscopy techniques, allowing for seamless integration into different imaging setups.

Customization
Each probe can be tailored to specific research needs, including unique geometries and material compositions, significantly improving functionality and results.

Precision
The 3D-printed design allows for nanometer-scale precision, crucial for applications in cellular biology, tissue engineering, and nanotechnology.

Cost-Effectiveness
The 3D printing process reduces manufacturing costs compared to traditional probe fabrication methods, making this technology accessible to a broader range of laboratories and industries.

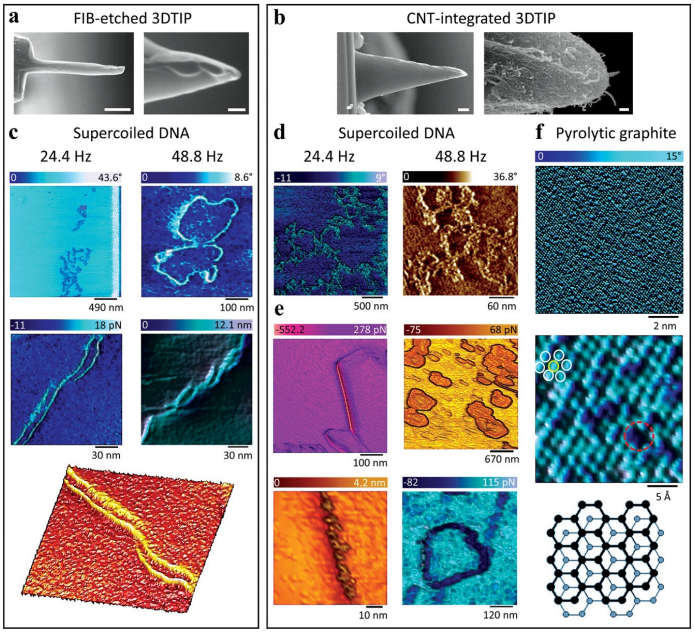
Three-dimensional Multipurpose Scanning Microscopy Probes

APPLICATIONS AND USES

The market for advanced microscopy technologies is growing rapidly, driven by increasing demand for high-resolution imaging. The invention has significant potential in the fields of biotechnology and medical research.

Industrial sectors that benefit from this innovation include:

- ➔ Biomedical Research and Diagnostics by high-precision manipulation and imaging of cells, tissues, and biomolecules.
- ➔ Nanotechnology and Materials Science to investigate nanoscale materials and structures for new material discoveries, energy storage, and electronics.
- ➔ Semiconductor industry to ensure quality control and foster innovation demands highly precise imaging techniques due to the miniaturization of electronic components.



High resolution imaging performance of FIB-etched and CNT-integrated 3DTIPs.

PRINCIPAL INVESTIGATOR

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Intellectual Property
Patent Number: US20220146549
New York University in Abu Dhabi Corp.

Proof of Concept
https://pubmed.ncbi.nlm.nih.gov/35853246/

ENGAGEMENT OPPORTUNITIES

We are offering opportunities for joint ventures, collaborative pilot studies and licensing with industry partners to further develop and commercialize this technology.

CONTACT DETAILS FOR ENQUIRIES

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