



Ultra-Smooth, Ultra-Sharp Gold Pyramid Probe Tips for Near-Field Imaging Applications (20130145, Dr. Sang-Hyun Oh)

Technology ID

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Category

Engineering & Physical Sciences/Design Specifications
Engineering & Physical Sciences/Materials
Engineering & Physical Sciences/Nanotechnology

Single Molecule Fluorescence and Tip-Enhanced Raman Spectroscopy (TERS)

A method has been developed to fabricate high-quality, uniform, ultra sharp (10 nm) gold pyramid probe tips. The technique is more reproducible and with a higher yield than current techniques and produces tips with better performance. The pyramids are perfect for use in single-molecule fluorescence imaging, tip-enhanced Raman spectroscopy (TERS) and other near-field imaging techniques.

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Uses Template Stripping Fabrication Instead of Focused Ion Beam

Current technology uses slow and expensive nanofabrication tools such as focused ion beam (FIB) or electron-based lithography techniques to produce probes for near-field imaging techniques. The described technique uses template stripping fabrication, which makes the process more reproducible, higher yielding and less expensive.

BENEFITS OF TEMPLATE STRIPPING GOLD PYRAMID PROBE TIPS:

- Highly reproducible, high-yield technique.
- Produces ultra-smooth, ultra-sharp probe tips.
- Ideal for use in single-molecule fluorescence imaging, tip-enhanced Raman spectroscopy (TERS) and other near-field imaging techniques.
- Less expensive than probes fabricated using other techniques.

Product Details

A method of producing gold pyramid probe tips for near-field imaging techniques.

Fulfillment Details

Licensee will receive rights to practice the intellectual property (patent application) for the purposes of developing and manufacturing a commercial product.

Phase of Development

Gold pyramid tips have been made and tested in near-field optical imaging instrument.

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