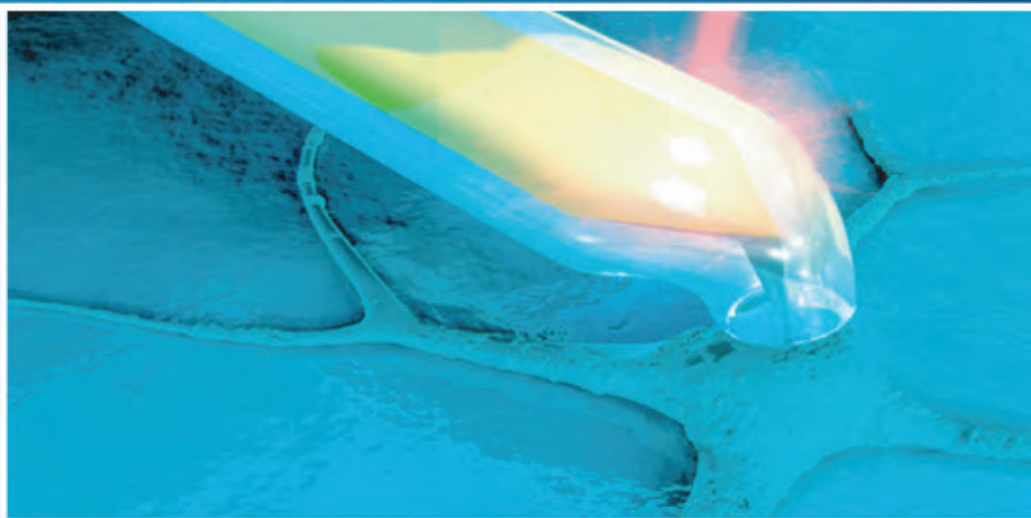




SCUBA PROBE  
TECHNOLOGIES

Underwater Nanoscience

PROBES THAT REVOLUTIONIZE LIQUID AFM



[www.scubaprobe.com](http://www.scubaprobe.com)

Scuba Probe Technologies specializes in the development and commercialization of innovative tools for scanning probe microscopy in liquids. With over 30 years of combined experience in scanning probe microscopy, our team of scientists and engineers strives to revolutionize underwater nanoscience.

## MARKETS AND APPLICATIONS



### **Medicine:**

diagnostics, quantitative biosensing, drug research, pharmaceuticals



### **Biology:**

imaging of proteins and live cells, cell mechanics and dynamics, biophysics



### **Energy Solutions:**

photovoltaics, batteries, super-capacitors, catalysis, corrosion



### **Electrical Characterization:**

integrated circuits, failure analysis, conductance and dopant mapping



### **Material Science:**

chemistry, compositional mapping, friction, thin films, polymers



### **Your in-situ Nanoscience**

Scanning probe microscopy is essential for providing structural and functional imaging at the nanoscale but its limitations when operating in liquids preclude it from reaching its full potential to visualize and elucidate nanoscience processes at the molecular level. Scuba Probe Technologies removes these limitations with more reliable and higher performance probes that have a dramatic impact on nanoscale research.



# PRODUCTS AND TECHNOLOGY

## SP-EXPLORER

Encased cantilevers improve performance for imaging and force spectroscopy in liquid.



### How it works

Cantilevers typically suffer from high viscous damping and added mass due to the surrounding liquid. For the SP-EXPLORER, we built a hollow hydrophobic encasement around the probe that prevents liquid from entering such that the SP-EXPLORER remains dry while submersed in water. A few microns of the probe's sharp tip protrudes from the encasement to interact with your delicate sample.

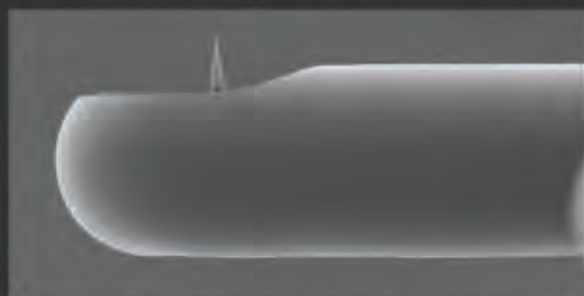
The encasement is optically transparent so that it is compatible with all of your AFMs. Operating your instruments will become easier because of lower drift and the ability to autotune to a single high-Q resonance peak like when operating in air.

### Enhanced SPM Methods

- Reliable high resolution imaging
- Non-invasive in-situ observation
- Low-noise force spectroscopy and mapping
- Quantitative tip sample interaction
- High-Speed imaging

### Highlighted Features:

- High Q-factor in liquids
- High resonance frequency in liquids
- Quantitative and gentle measurements
- Autotune to a single resonance peak
- Low thermal drift
- Compatible with all instruments



Patents:US9229028, EP2754176, WO2013036377

# PRODUCTS AND TECHNOLOGY

## SP-EL INSULATED CANTILEVER

Scuba Probe's SP-EL enables scientists and engineers to investigate nanoscale properties of electroactive materials in-situ.

### How it works

The SP-EL is electrically insulated with only the very apex of the conductive metallic tip exposed. A flexible handle attached to the probe provides a reliable electrical contact with conformal insulation that surrounds both the connector and the chip. An integrated counter electrode simplifies setup of your electrochemical experiment.

The handle allows you to mount the probe in any tip holder without using tweezers.

### Enhanced SPM Methods

- Electrochemical characterization
- Surface potential measurements
- Electrophysiology
- Scanning Probe Lithography

### Highlighted Features:

- Conductive probe
- Low leakage currents
- Reliable electrical contacts
- Tweezer-free insertion
- Compatible with all instruments



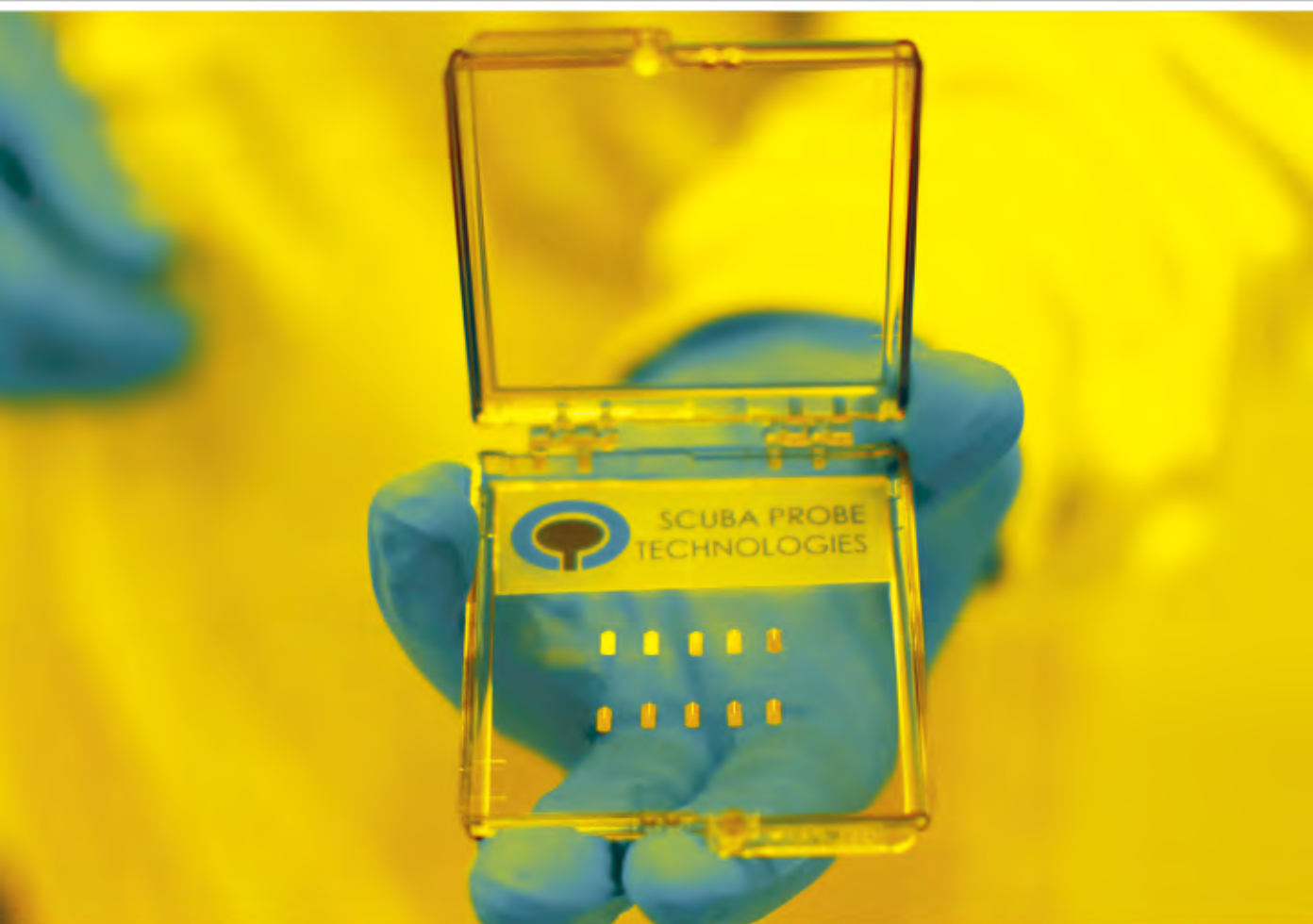
Cantilever Handle (Patent Pending)



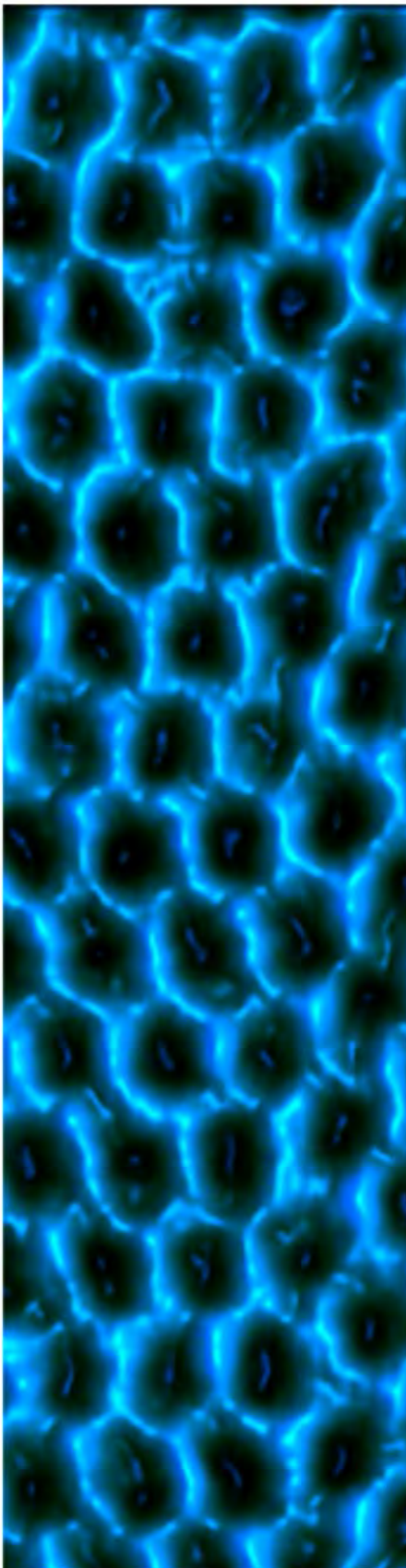


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## MISSION

Scuba Probe's mission is to provide the ultimate in high performance cantilevers for nanoscience research in liquids.

## VISION

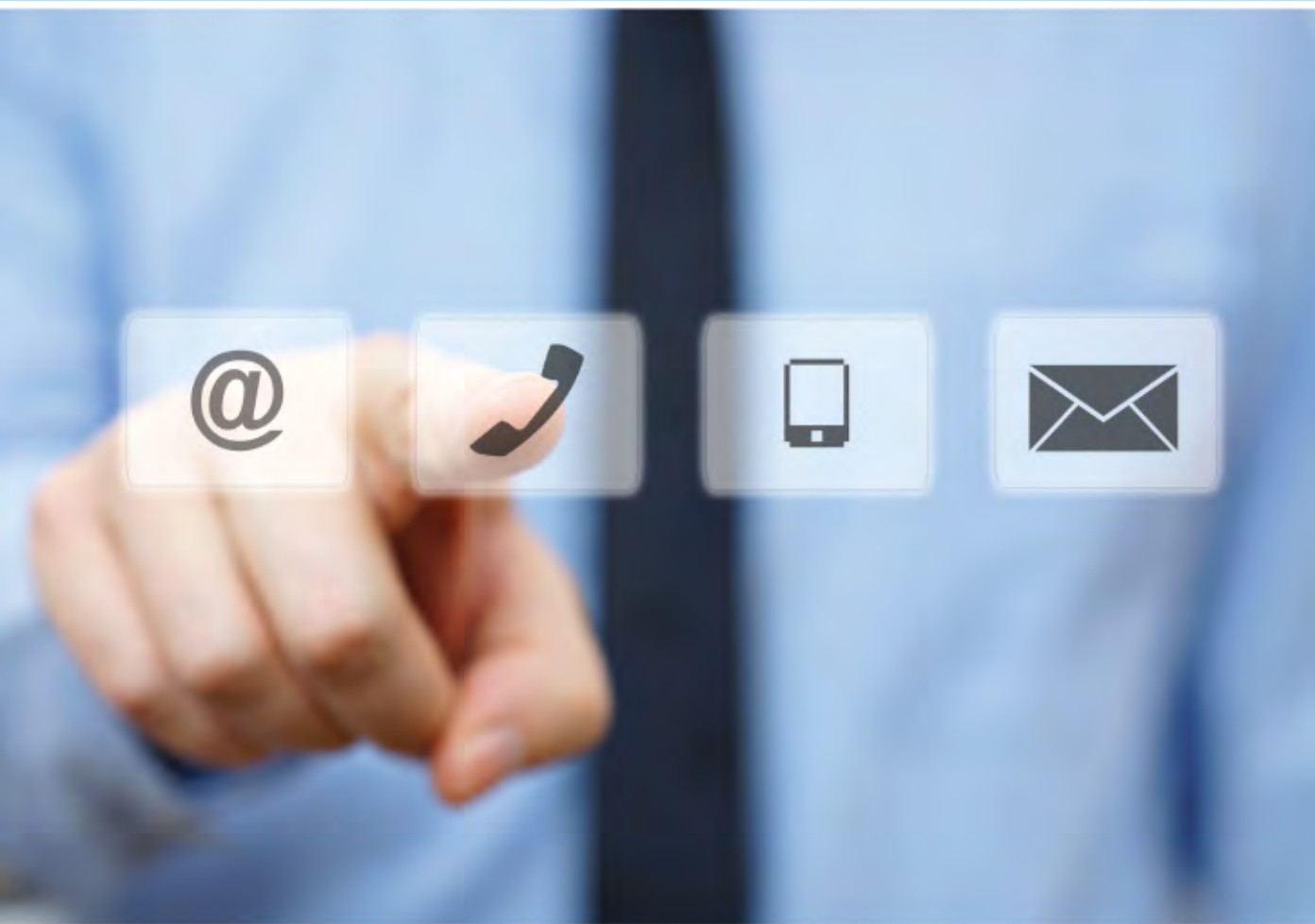
We aim to transform society by empowering researchers and scientists to accelerate nanoscience research in liquids through the manufacture and distribution of sensitive and robust scanning probe microscopy probes.

## ABOUT US

Scuba Probe Technologies was founded by two scanning probe scientists Dominik Ziegler Ph.D and Paul Ashby Ph.D., who direct research, product development and operations. Maki Nishizaka leads marketing, administration and sales. A motivated team of six scientists and engineers carry out research and development plus application support.

Lattice of mica imaged in water using a SP-EXPLORDER





SCUBA PROBE  
TECHNOLOGIES

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