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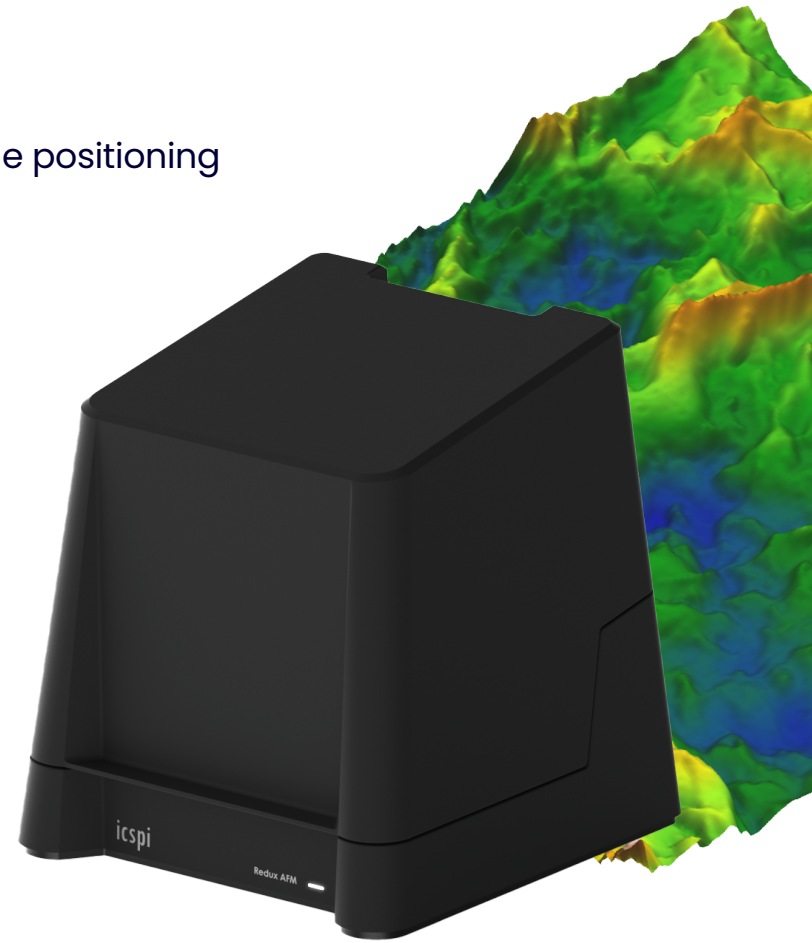
REDUX AFM

Motorized AFM on your benchtop

- 2 minute time-to-data
- Automatic sweep, approach & scanning
- Motorized XY and Z stages for easy sample positioning
- Integrated optical microscope
- Easy-to-use tip cartridge with TipGuard



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OUR MISSION

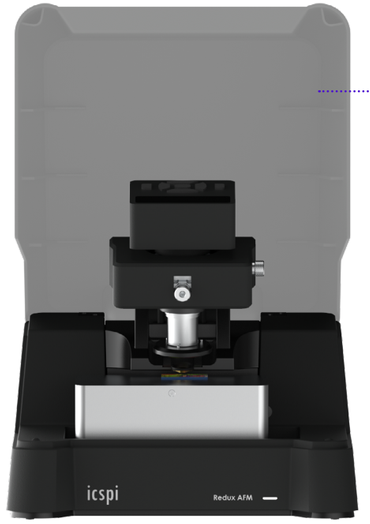
ICSPI is on a mission to bring fast, powerful, and easy-to-use nanoscale imaging tools to your benchtop.

"I can attest that this technology is extremely reliable and can produce images that rival much larger and more expensive AFM systems."

Professor Michael Cullinan
University of Texas at Austin, USA

What we do

ICSPI designs and manufactures atomic force microscopes (AFMs) for research, industry and education. We push the limits of what is possible in nanoscale metrology with our team of engineers of the highest calibre working on our patented CMOS-MEMS technology. ICSPI is headquartered in Kitchener-Waterloo, Ontario, Canada.



REDUX AFM

Fast
2 minute time-to-data

Easy-to-use
Scans in 3 clicks

Simple sample positioning
Motorized XY and Z stages

Our Story

ICSPI was founded in 2007 with the goal of bringing robust, easy-to-use, nanoscale metrology to everyone. Although technology continues to shrink faster than ever, nanoscale imaging has remained relatively inaccessible. Frustrated by the poor versatility, complexity and high costs of traditional nanoscale imaging systems, ICSPI sought to revolutionize nanoscale imaging and bring the technology to every laboratory, student and researcher.

About the Redux AFM

- Collect 3D images at the nanoscale in 3 clicks
- Laserless system: no laser alignment
- Simple sample positioning: motorized XY stage and integrated optical microscope
- Automatic approach: one-click automatic approach in seconds
- Unique tip cartridges and TipGuard: the only AFM with easy-to-handle tip cartridges

REDUX AFM

A higher level of automation

- Automatic sweep, approach and scanning
- Motorized XY and Z stages
- Integrated optical microscope
- Environmental cover
- AFM tip cartridge with TipGuard

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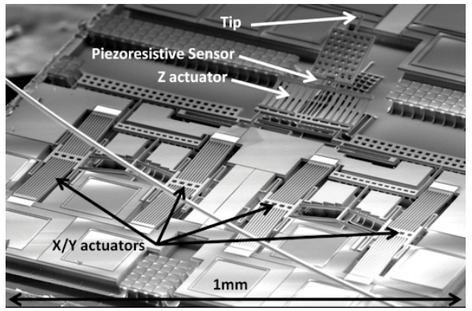
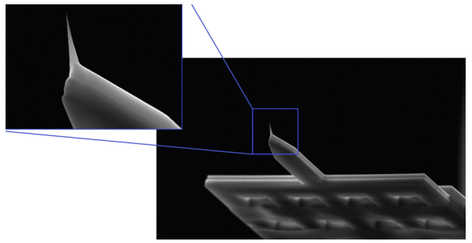
Unique AFM-on-a-chip Technology

AFM-on-a-Chip

The Redux AFM is an automated and laserless system: an integrated piezoresistive sensor allows for laser alignment-free operation and a fully automatic approach – so you can collect nanoscale data effortlessly.

All of the sensors and scanners of traditional AFM instruments have been integrated onto a single 1 mm x 1 mm chip.



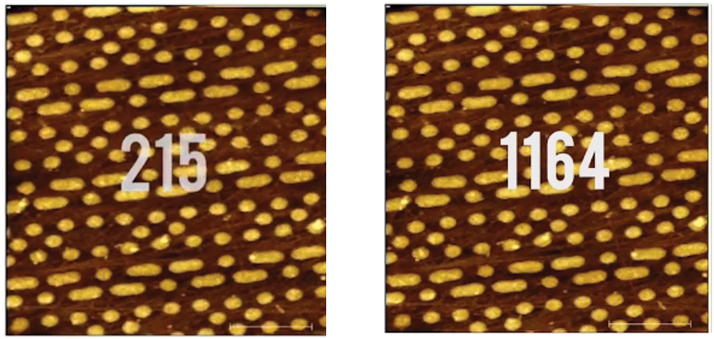


"We have been blown away by its performance, ease-of-use and portability. The tool easily saves us several thousand dollars a month in AFM usage fees at third-party labs."

Dr. Michael Helander, CEO
OTI Lumionics, Canada

Long Lifetime AFM Probe Tips

ICSPI AFM tips are made of durable materials like diamond-like carbon and aluminum oxide. Combined with the unique, compliant AFM-on-a-chip mechanism and cantilever, lifetime of 1000+ scans without noticeable wear is possible.



AFM topography scans of an Intel microchip (copper on slicion dixiode). Number indicates scan number as part of a time lapse of scans. Image quality (lateral resolution) does not degrade after over 1000 scans.

Redux AFM Specifications

Scanning

Scan types	Topography, Phase
Max scan size	20 µm × 20 µm
Min scan size	300 nm × 300 nm
Vertical scan range	10 µm
Noise floor	<0.5 nm rms

Resolution and Speed

Quick scan (128 px)	16 sec
Routine scan (256 px)	80 sec
High-resolution scan (512 px)	5 min
Max resolution	1024 × 1024 pixels

Samples

Sample platform area	105 mm × 95 mm
Max sample height	20 mm
Max sample weight	250 g

Motorized XY Stage

Sample positioning range (XY)	10 mm × 10 mm
Minimum step	<15 µm

Integrated Optical Microscope

Objective	10x, 0.25 NA
Field of view	1.4 mm × 0.8 mm
Resolution	1920 × 1080 FHD Video output
Sample illumination	Integrated LED Lighting

System Dimensions and Weight

Dimensions (L x W x H)	23.2 cm × 22.0 cm × 24.6 cm
Weight	4 kg

Software and I/O

Communication	USB
Operating system	Windows 10, 11
Data output	gsf, tsv, png

Power

Power supply	Class II (two prong)
Input	100-240 VAC ~ 50/60 Hz
Output	12 VDC, 3 A

Comparison

	Redux AFM	Traditional AFM	SEM
Operation in air	✓	✓	X
Automatic approach	✓	X	N/A
Install time	5 min	1–2 weeks	1–2 weeks
Time to data	2 min	1 hr	30 min–1 hr
Cost	$	$ $ $	$ $ $ $
Cost per scan	$	$ $	$ $
Benchtop operation	✓	X	X
Training time	1 hr	12+ hrs	12+ hrs
Laser alignment-free	✓	X	X
Regular power and USB	✓	X	X
Easy-to-handle cartridges	✓	X	N/A
Maintenance-free	✓	X	X
3D images	✓	✓	X
Sub-nanometer resolution	✓	✓	X
Non-conductive samples	✓	✓	X

Trusted by researchers, engineers and educators worldwide

3M

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TEXAS
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SEAGATE

Berkeley
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BOEING

rigetti

BAM
Bundesanstalt für Materialforschung und -prüfung

大阪大学
OSAKA UNIVERSITY

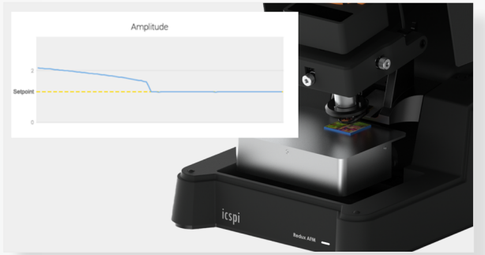
3D nanoscale scans in 3 clicks

1. Simple sample positioning

Using the motorized XY stage and integrated optical microscope

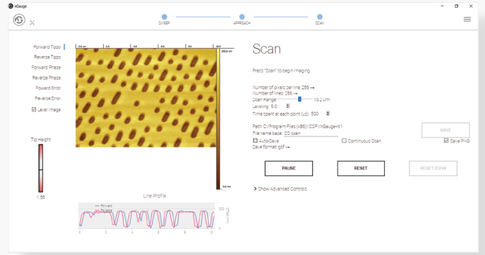
2. Automatic approach

One-click automatic tip-sample approach completes in ten seconds



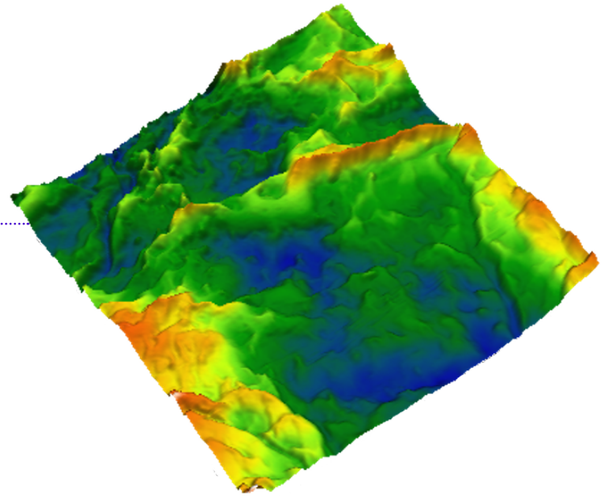
3. Fast scanning

Capture routine scans in just over a minute

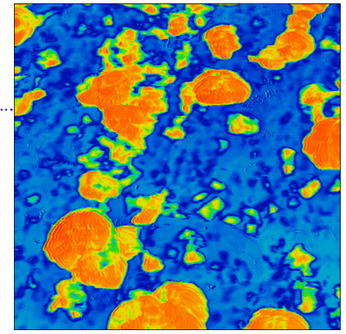


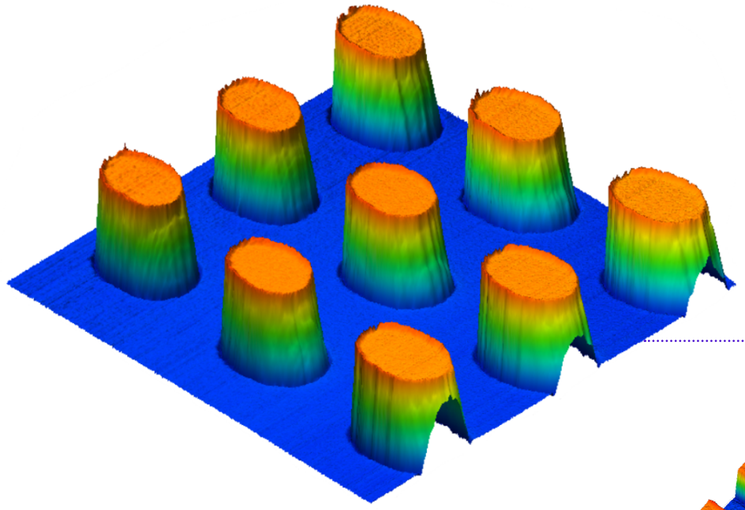
Scan Images

3D scan of human skin sample



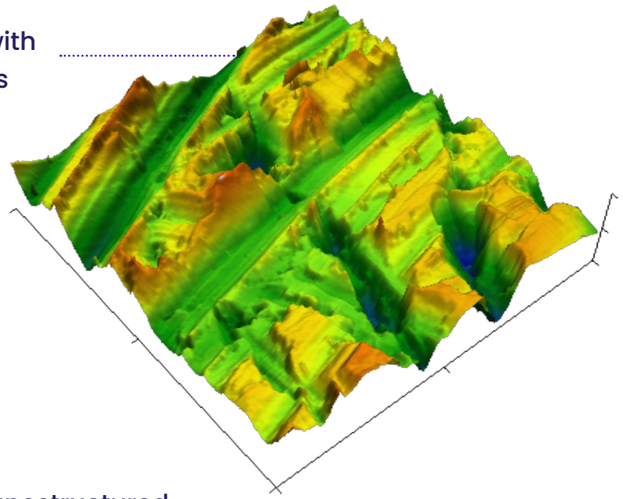
Phase scan of silica-polymer composite

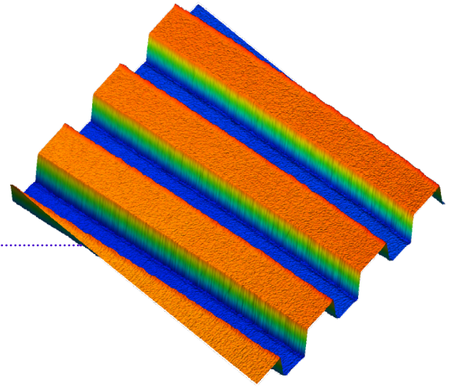




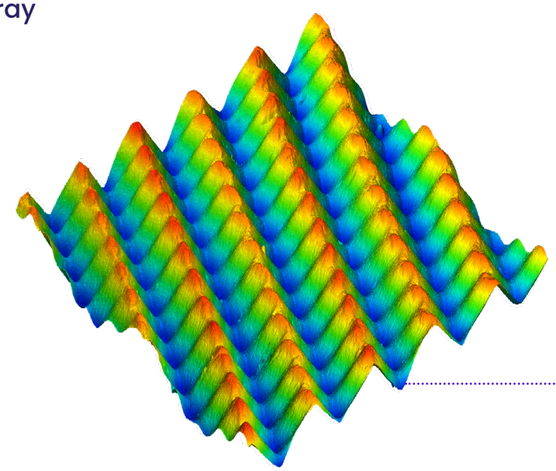
3D scan of micropillar array

3D scan of steel sample polished with 9-micron polycrystalline diamonds





3D scan of 200 nm half-pitch line grating



3D scan of nanostructured data storage media

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