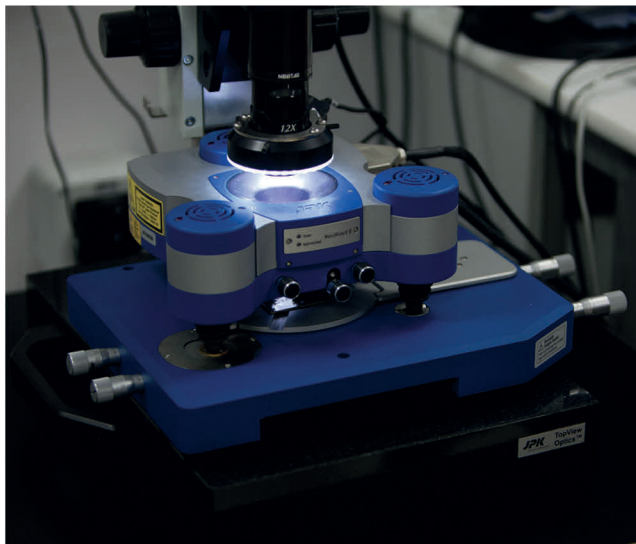


# ATOMIC FORCE MICROSCOPE



The JPK Nanowizard Atomic Force Microscope utilises the physical interaction of a probe tip with a surface to image topography in 3-D. When the tip is moved across the surface in a raster scan the change in height is detected and this is displayed as the image. AFM can give very precise measurements of small surface features, roughness and adhesion forces. AFM is also capable of imaging soft biological and insulating samples unlike other microscopy techniques.

## FEATURES

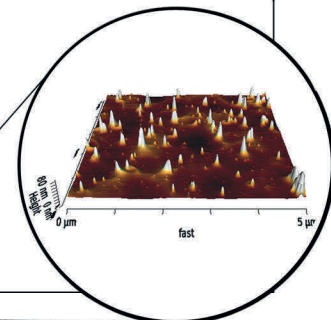
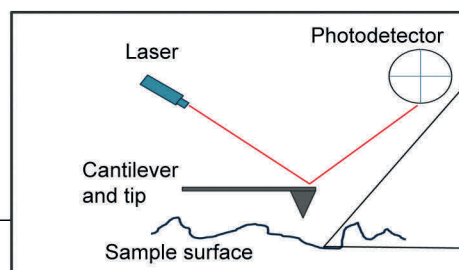
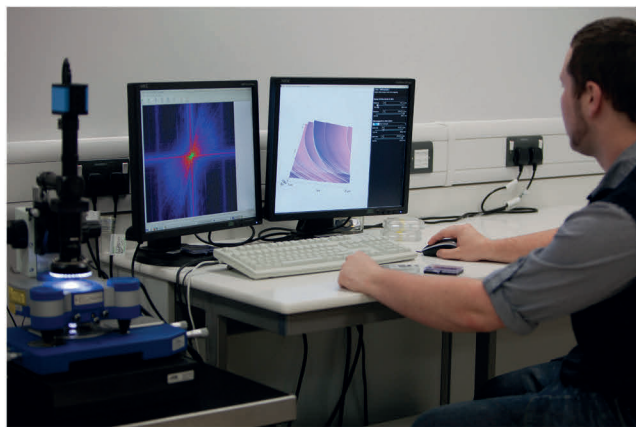
- Force measurements
- Phase Imaging
- Electrical mode for surface potential and electronic properties
- Conductive-AFM
- Kelvin Probe Microscopy (KPM)
- Scanning Tunnelling Microscopy (STM)

## SPECIFICATIONS

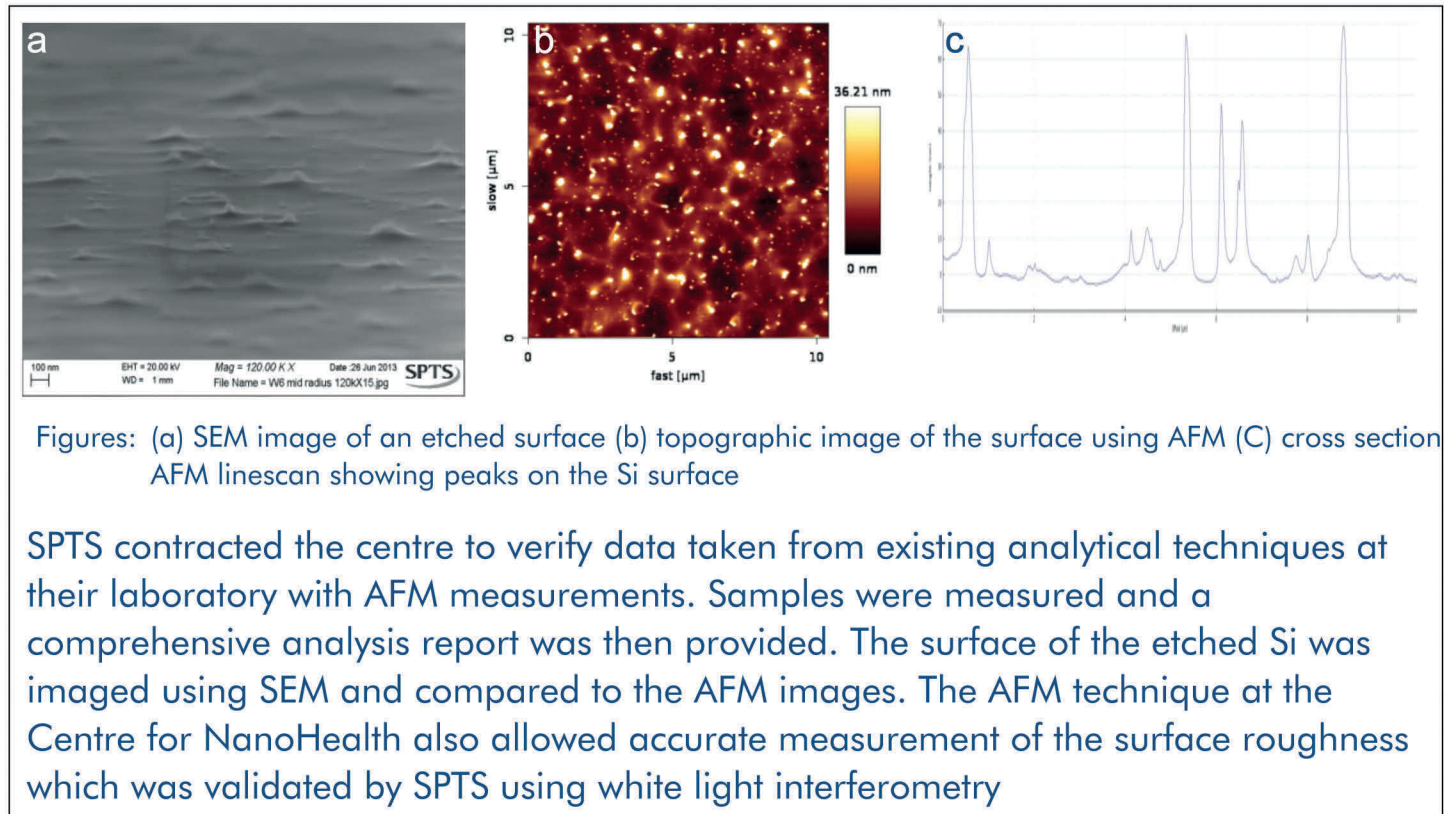
- Electrical conductivity and I-V measurements on the nanoscale
- Liquid cell for imaging and force measurements in a liquid environment.
- $100 \times 100 \times 15 \mu\text{m}^3$  scan range for the head in closed-loop Mode.
- Pixel resolution:  $> 131,000$  pixels for force curves.

## BENEFITS

- Optimise a process by identifying key changes in a material.
- Exact characterisation of a materials shape and size.
- Can be used to perform quantitative analysis such as measuring the surface electric charge or the adhesion force between the probe material and the surface.
- Reduce costs and improve product performance.
- Ability to visualise a surface on the nanometre scale.



## CASE STUDY



## APPLICATIONS

AREA OF INTEREST	APPLICATIONS
<b>NANOSCIENCE, POLYMERS &amp; THIN FILMS</b>	<ul style="list-style-type: none"> <li>• Biomaterial studies and biosensor capsules.</li> <li>• Implants coatings and biochips.</li> <li>• Testing functionalized surface.</li> <li>• Soft materials studies such as degradation, mechanical or electrical properties.</li> <li>• Polymers and thin film imaging and mapping in air and liquid with different temperatures of liquids such as non aqueous solvents.</li> <li>• Nanoparticles, nanotubes, nanocomposites, vesicles and colloids investigation.</li> </ul>
<b>CHARACTERISATION WITH AFM</b>	<ul style="list-style-type: none"> <li>• Measurement of surface topography</li> <li>• Quantitative analysis of surface roughness</li> <li>• Measurement of surface charge</li> </ul>

