

FLAGSHIP INSTRUMENTS & RESEARCH INFRASTRUCTURE

ENABLING WORLD CLASS RESEARCH



Cameca IMS 1280 & NanoSIMS 50 ion microprobes (UWA)

The NanoSIMS is an ion microprobe for ultra-fine feature imaging, and chemical and isotope analysis. The IMS 1280 is designed for in-situ, high-precision isotope-ratio analysis. Both can detect up to five ionic species simultaneously in a diverse array of materials and biological specimens.



High-throughput cryo-TEM facility (UQ)

Instruments that enable rapid collection and processing of atomic-resolution TEM images of large molecules and macromolecular complexes at low temperatures. They also enable 3-D electron tomography, which reveals the structures of organelles, cells, tissues and nanomaterials.



Imago Local Electrode Atom Probes (USydney)

The two instruments that allow the determination of structure-property relationships in a range of conductive and less-conductive materials at the atomic scale. They can locate and identify all elements in a sample and extend atom probe tomography from metals to semiconductors, ceramics and polymers.



FEI DualBeam FIBs: Nova NanoLab 200 (UNSW) & Helios NanoLab (UAdelaide)

This key capability enables high-precision cross-sectioning by ion milling, and subsequent structural, elemental and orientational analysis in two and three dimensions. The FIBs also make possible the preparation of thin-foil TEM samples of difficult materials and samples for atom probe analysis.



High-resolution SEM microanalysis facility (UNSW)

A suite of field emission scanning electron microscopes providing a high-throughput, high-precision facility able to structurally characterise materials and to detect and quantify elements at very high spatial resolution. High-resolution SEM imaging completes this comprehensive platform.



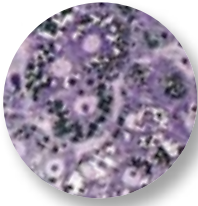
PHI TRIFT V nanoToF ToF-SIMS (UniSA)

An extremely sensitive instrument able to analyse atoms and small organic molecules, within a few atomic layers of a surface, with a detection limit of parts per billion. Depth profiles can be generated by the progressive action of the ion beam over the surface to remove successive layers of material.



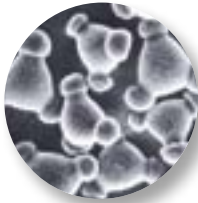
Specimen Preparation

Biological & Materials
Cell Culturing & Molecular Preparation
Thermomechanical Processing



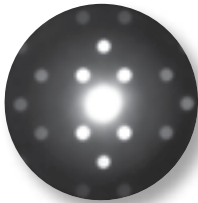
Light and Laser Optics

Confocal, Fluorescence & Optical Microscopy
Flow Cytometry & Cell Sorting
Live-cell Imaging
Vibrational & Laser Spectroscopy
Laser Microdissection



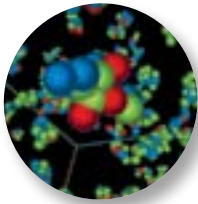
Scanning Electron Microscopy

Imaging & Analytical Spectroscopy
In-situ Imaging & Testing
Cathodoluminescence



Transmission Electron Microscopy

Imaging & Analytical Spectroscopy
Cryo Techniques & Tomography
Phase & Z-contrast Imaging
Diffraction



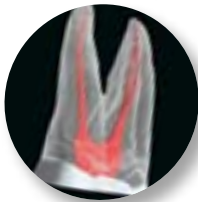
Advanced Ion Platforms

Nanoscale Mass Spectroscopy
Atom Probe Tomography
Ion Milling & Machining
Ion Implantation



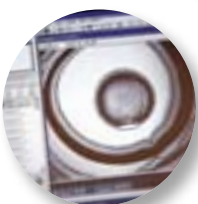
Scanned Probe Techniques

Atomic Force Microscopy
Scanning Tunneling Microscopy
Near-field Scanning Optical Microscopy



X-ray Technologies

X-ray Diffraction
X-ray Fluorescence
X-ray Micro- and Nanotomography



Visualisation and Simulation

Computed Spectroscopy
Computed Diffraction
Image Simulation, Analysis & Data Mining



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