



NANO-ANALYTICAL PLATFORM

Monash University Malaysia's Nano-Analytical Platform (NAP) was established to promote research excellence for nanoscale analysis by supporting a wide variety of multidisciplinary and cutting-edge research.

NAP hosts state-of-the-art analytical equipment, namely AFM, FESEM, VPSEM, HRTEM, XRD, Raman-PL, and TRPL which facilitate the imaging and analytical investigation of material from a wide range of scientific disciplines.

NAP also houses a PLD system for the deposition process of epitaxial thin film and nanostructure materials.

NAP has been ISO9001-certified since 2019. With world class facilities, we offer a diverse range of research and commercial capabilities.

KEY INSTRUMENTATION

- Atomic Force Microscope (AFM) Bruker Multimode 8
- Field Emission Scanning Electron Microscope (FE-SEM) Hitachi SU8010
- High Resolution Transmission Electron Microscope (HR-TEM) FEI Tecnai G2 20 S TWIN
- Variable Pressure Scanning Electron Microscope (VP-SEM) Hitachi S3400-II
- X-Ray Diffractometer (XRD) Bruker D8 Discover
- Raman-Photoluminescence Spectroscopy (RAMAN-PL) Horiba LabRAM HR Evolution
- Time Resolved Photoluminescence (TRPL) Horiba DeltaPro-DD
- Pulsed Laser Deposition (PLD) Adnanotek Laser Coherent COMPrexPro 102
- Sputter Coater (Platinum / Gold) Quorum Q150R S

EXPERTISE

Our expertise is in providing nanoscale analytical services and solutions to both academia and industry through state-of-the-art material characterisation. The platform offers extensive facilities and instruments to support the fabrication and characterisation of advanced materials with particular emphasis on nanoscale materials and nano-systems:

- Structure, morphology, topography and elemental analysis
- Measurements of nanoparticle size and size distribution
- Crystallographic structure
- Surface and thin film characterisation
- Thin film fabrication

WORKING WITH US

- Fee for service
- Collaborative research
- Training
- Consultancies

Specialist Services

NAP is an ISO 9001-certified multidisciplinary research infrastructure platform for nanoscale materials characterisation.

We provide technical expertise, training and workshops to internal and external researchers with several state-of-the-art analytical instruments in NAP.

Specialist Service #1: Surface Morphology, Topography, Elemental And Imaging Analysis

Our advanced microscopy techniques, including FESEM, VPSEM, HRTEM and AFM, offer valuable topographical information of materials. They allow our researchers to explore and understand the intricate structures, properties and behaviours of a wide variety of materials, from surfaces and interfaces to internal atomic arrangements.

Specialist Service #2: Raman And PL Spectroscopy Analysis

Our Micro Raman Spectrometer with PL provides detailed information about molecular vibrations, chemical composition and molecular interactions within a sample. The instrument is also capable of photoluminescence spectroscopy, which involves the measurement of light emission from a sample upon excitation with photons.

Specialist Service #3: Thin Film Fabrication

Our thin film fabrication uses pulsed laser deposition system coupled with COMPex laser to deliver stoichiometric thin films of wide range materials. The entire deposition process is fully automated.

Specialist Service #4: Diffraction Analysis

The capabilities of our XRD tool extend to the analysis of a diverse range of samples, encompassing powders, thin films, bulk materials and nanomaterials. The non-destructive analysis can provide valuable insights into their crystallographic properties, compositions and defects, among many others.

Other Capabilities

- STEM analysis (via FE-SEM, HR-TEM)
- EDX analysis (via FE-SEM, HR-TEM)
- Cross section analysis
- Structure and texture analysis at molecular level
- Phase identification
- Thin film analysis
- SAED analysis
- Surface roughness analysis
- Photoluminescence analysis

Nano-Analytical Platform

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