



AMMRF @ The University of New South Wales

The UNSW Electron Microscope Unit (EMU)

The Electron Microscope Unit is a centralised research, teaching and service unit that plays a critical role in supporting the research programs at the University of New South Wales.

About the Node

The Electron Microscope Unit at the University of New South Wales (UNSW) is located within the University's Analytical Centre, which also encompasses mass spectrometry, nuclear magnetic resonance and solid-state and chemical analysis. The Centre operates within the division of the Deputy Vice-Chancellor (Research). The EMU currently contains 15 frontline instruments and has a similar number of staff.

The node's instruments include a field-emission TEM, a field-emission dualbeam FIB and an electron microprobe analyser. Each year, the Unit supports around 400 research projects across the Faculties of Science, Engineering and Medicine, as well as from a large number of other universities, government research organisations and the private sector. A key element of that support is one-on-one training provided by the Unit's staff to researchers, which enables them to not only obtain their data efficiently, but to also gain an understanding of the scientific principles that underpin the information they obtain.

Most of the University's leading research centres make significant use of the Unit. These include the ARC Centres of Excellence for Quantum Computing Technology, Advanced Silicon Photovoltaics and Photonics, Functional Nanomaterials and Design in Light Alloys, the CRCs for Coal in Sustainable Development and Composites, and major research groups in, for example, macromolecular science, membranes and medical prostheses.

EMU staff support teaching programs across a large number of UNSW's schools and prosecute programs of research in areas such as functional thin films and defects in wide-band-gap materials. The EMU's academic staff are internationally renowned for their work.

Contact and information

Electron Microscope Unit (EMU)

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Node Director:
Prof. Paul Munroe

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**Node Director &
AMMRF Technical Director**



Prof. Paul Munroe

Paul is a physical metallurgist and electron microscopist whose research interests include functional thin films and surface coatings and the application of focused ion beam technologies, including 3-D image reconstruction, to solving materials science problems. His group is engaged in a number of projects, investigating structure-property relationships in a range of surface-treated or coated materials. Paul is also the Technical Director of the AMMRF.
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Deputy Director



**A/Prof. Marion
Stevens-Kalceff**

Marion is a condensed-matter physicist whose research interests include the investigation of radiation-induced microstructural defect generation and transformation in wide-band-gap and insulating materials. In particular, silicon dioxide polymorphs, alumina, compound semiconductors, silicon, diamond, and nanostructured variants of these materials are being investigated by using complementary combinations of electron microscopy and atomic force microscopy techniques.
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Laboratory Manager



Ms Jenny Norman

Jenny has a degree in Biological Sciences from Macquarie University and a Masters in Microscopy and Microanalysis from the University of Sydney. She has many years of experience working in microscopy and histology laboratories at Macquarie University and the University of New South Wales. Jenny's research focuses primarily on the ultrastructural morphology of a group of primitive invertebrates known as peripatus. As Laboratory Manager, Jenny is responsible for the operational aspects of the day-to-day running of the EMU.
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Administrative Co-ordinator



Ms Trish Koh

Trish graduated from Macquarie University with a Bachelor of Arts in Media and Cultural Studies and a Masters of Arts in Translation and Interpreting. She has several years of experience in administration in educational institutions. Trish is responsible for day-to-day administration, including the Unit's financial matters.
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Flagship Manager



Dr Charlie Kong

Charlie is the Flagship Manager of the FEI Nova Nanolab 200 Dualbeam FIB instrument. He has a PhD in Materials Science and Engineering from the University of New South Wales, and he has worked in university research for the past ten years. Charlie's current research interests are 3-D image reconstruction and structure-property relationships in advanced alloys.
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Flagship Manager



Dr Karen Privat

Karen's background is in biomolecular archaeology and she joined the UNSW EMU in 2006. She had previously worked at the University of Sydney's EMU. Her training and support role first focused on FIB, AFM, TEM and then SEM imaging and EDS analysis, and now Karen is the Flagship Manager with primary responsibility for training on, and maintenance of, the JEOL JXA-8500F Hyperprobe EPMA. Karen is looking forward to using the advanced low-beam-energy capability of the 8500F to investigate a diverse range of materials, including archaeological specimens such as pottery, glass, lithics, bones and teeth.
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