



RESEARCH FELLOW – ELECTRON MICROSCOPY

DEPARTMENT/UNIT	Monash Centre for Electron Microscopy
FACULTY/DIVISION	Vice Provost (Research & Research Infrastructure)
CLASSIFICATION	Level B
WORK LOCATION	Clayton campus

ORGANISATIONAL CONTEXT

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at www.monash.edu.

The **Provost and Senior Vice-President** is the Chief Academic Officer of the University and is responsible for: setting the University's academic strategy and priorities with view to improving the education and research performance of the University; oversight of faculties, academic-related portfolios and University-wide centres and institutes; oversight of academic staffing including recruitment, development, reward and recognition, policies and procedures; strategic leadership for the delivery of academic programs; identifying and cultivating interdisciplinary areas of excellence and collaboration.

The **Monash Centre for Electron Microscopy (MCEM)** (<http://mcem.monash.edu.au/>) is a central university research platform that conducts research in electron microscopy and provides advanced instrumentation, expertise and training in electron microscopy to researchers across primarily the non-biological sciences and engineering.

The MCEM has a suite of advanced instruments, including a double-aberration-corrected Titan3 80-300kV fitted with pixelated and CMOS detectors for scanning CBED and 4D-STEM. In late 2019, MCEM will install a next generation ultrahigh energy and spatial resolution S/TEM FEG-TEM with a customized electron-optical configuration for optimum performance in scanning CBED and 4D-STEM. In addition, MCEM has 2 other FEG-TEMs, 1 TEM, 3 FEG-SEMs and a FIB/ESEM plus a range of supporting computing, software and specimen preparation equipment. MCEM staff provide expert advice and training to researchers using the Centre. In addition, MCEM academic and research staff conduct their own specialised research programmes in fundamental and applied microscopy.

MCEM is located on the Clayton Campus in a dedicated electron microscopy building, specifically designed to provide exceptional mechanical, thermal and electro-magnetic stability to optimise instrument performance. It is adjacent to, and works closely with, the Monash Ramaciotti Centre for Cryo-Electron Microscopy, which includes a Titan Krios and Helios cryo-FIB system.

POSITION PURPOSE

This position will conduct high-quality research in the development of new TEM and STEM methods to solve important problems in condensed matter physics and materials science and engineering. These methods will tune the incident electron wave field, the electron scattering dynamics and the detected exit wave intensity to obtain maximum information about the specimen. The position will exploit aberration-corrected FEG-TEMs with tailored electron-optics and pixelated and single electron detector systems operating in scanning CBED, 4D-STEM, pseudo-confocal and other customised modes to deliver new information about key material systems.

Reporting Line: The position reports to the Director, Monash Centre for Electron Microscopy

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budget Responsibilities: Not applicable

KEY RESPONSIBILITIES

Specific duties required of a Level B research-only academic may include:

1. Conduct research, both as a member of a team and independently, in the development and application of new STEM and TEM methods and related techniques
2. Produce high-quality research publications in the development and application of STEM and TEM methods and related techniques
3. Guide or co-supervise honours or postgraduate research students within the field of the staff member's area of research
4. Contribute to professional activities including attendance at conferences and seminars in the field of expertise
5. Contribute to the preparation or, where appropriate, individual preparation of research proposal submissions to external funding bodies
6. Undertake limited administrative functions primarily connected with the area of research of the academic
7. Participation in meetings associated with the research group or the work of the organisational units to which the research is connected and/or membership of a limited number of committees
8. Occasional contributions to the teaching program within the field of the staff member's research

KEY SELECTION CRITERIA

Education/Qualifications

1. The appointee will have:
 - A doctoral qualification in the relevant discipline area or equivalent qualifications or research experience

Knowledge and Skills

2. Advanced understanding and experience in at least two of the following fields: Electron scattering theory and computation, Atomic Resolution Scanning Transmission Electron Microscopy, Convergent Beam Electron Diffraction, Aberration-corrected STEM or TEM, Electron-optical design
3. Practical computing and programming skills
4. Demonstrated track record of high-quality research work and refereed research publications (journal impact factor is not used here to assess publication quality)

5. Excellent communication skills to effectively relate scientific material, both orally and in writing
6. High level organisational skills, with demonstrated capacity to establish and achieve goals
7. Ability to work both independently and as part of a team
8. Strong interpersonal skills to interact effectively with students, academic and professional staff

OTHER JOB RELATED INFORMATION

- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- Occasional travel may be required to attend national and/or international conferences and/or to visit international collaborators, if required
- Experimental work may require instrumental bookings outside of normal working hours

LEGAL COMPLIANCE

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.