

## Position Description – Research Fellow

### Position Details

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<b>Position Title:</b>	Research Fellow – 2D Materials Fabrication & Analysis
<b>Position Number:</b>	NEW
<b>College/Portfolio:</b>	Science, Engineering and Health
<b>School/Group:</b>	School of Science
<b>Campus Location:</b>	Based at the City campus.
<b>Classification:</b>	Academic B Salary Schedule: <a href="http://www.rmit.edu.au/browse;ID=ewhltt73t01">http://www.rmit.edu.au/browse;ID=ewhltt73t01</a>
<b>Employment Type:</b>	Fixed term – Research (12 months) <i>Note: See <a href="#">Reasons for fixed term appointments guideline</a> for explanation of fixed term categories</i>
<b>Time Fraction:</b>	1.0 FTE

### RMIT University

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RMIT is a global university of technology and design, focused on creating solutions that transform the future for the benefit of people and their environments.

One of Australia's original educational institutions founded in 1887, RMIT University now has 82,000 students including 12,000 at postgraduate level.

The University enjoys an international reputation for excellence in professional and practical education, applied and innovative research, and engagement with the needs of industry and the cities in which we are located.

With three campuses in Melbourne (Central Business District, Brunswick and Bundoora), two in Vietnam (Hanoi and Ho Chi Minh City) and a centre in Barcelona, Spain, RMIT is a truly global university. RMIT also offers programs through partners in Singapore, Hong Kong, mainland China, Indonesia, Sri Lanka, Belgium, Germany, Austria and The Netherlands, and enjoys research and industry partnerships on every continent.

RMIT prides itself on the strong industry links it has forged over its 128-year history. Collaboration with industry is integral to the University's leadership in applied research and education, and to the development of highly skilled, globally focused graduates.

We are a 5-Star university under the QS Stars international evaluation system, and are ranked 32nd in the World among the universities less than 50 years old (2014 QS Top 50 Under 50 index).

RMIT features among the World's top 200 institutions in 13 of the 30 subject areas in the 2015 QS subject rankings. We are also among the World's top 100 universities in Art and Design; Architecture and the Built Environment; Engineering; Computer Science; and Business and Management Studies.

[www.rmit.edu.au](http://www.rmit.edu.au)

## **The College of Science, Engineering and Health**

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The College comprises four Schools delivering a broad range of programs in science, engineering, health and technology at apprenticeship, certificate, bachelor, masters and PhD levels. There is a vibrant research community attracting funding from a range of government and industry sources. The College has an annual income of approximately \$500 million and employs over 1,000 staff providing on and offshore programs and research opportunities to approximately 20,000 students.

Details relating to the College may be found on at: [www.rmit.edu.au/seh](http://www.rmit.edu.au/seh)

The School of Science comes into existence on January 1, 2016 and comprises the previous schools of Applied Sciences; Mathematical and Geospatial Sciences; and Computer Science and Information Technology. The School encompasses the disciplines of, Physics, Chemistry, Food Sciences and Molecular Bioscience, Mathematics and Geospatial Sciences, Computer Science and IT.

Bringing the science disciplines together within the one school provides tremendous opportunities for interaction and collaborative interdisciplinary research work, the sharing of resources, strategic recruitment and infrastructure investment. The School of Science bridges the gap between the natural sciences and technology, providing enormous capacity for collaboration and advancement in the areas of biotechnology (including bio-nanotechnology and bio-nanophotonics), genomics, data analytics, and cyberspace and security. In 2017 Physics at RMIT was particularly successful winning 3 new Centres of Excellence in Exciton Science, Quantum Computing; and Future low energy electronic technologies (FLEET), to add to the Centre of Excellence in Nanoscale Biophotonics.

The School of Science has staff, students and facilities on both the City and Bundoora campuses, with over 300 academic and research staff, 350 higher degree research students, and an annual budget of \$120 million.

### **Position Summary**

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The holder of this position will contribute to the research program of fabricating and characterising of 2D materials. This will involve the growth and characterisation of a range of materials, predominantly semiconducting, other and related 2D materials exfoliated from liquid metal surfaces. This person will work directly with Professor Chris McConville (Physics) and Dr. Torben Daneke (Electronic Engineering) and will work in both the School of Science and the School of Engineering at RMIT on the Melbourne CBD campus (with periodic access to the soft X-ray beamline at the Australian Synchrotron in Melbourne). The research will focus on the fabrication and characterisation of the physical and electronic surface and interface properties of these 2D exfoliated materials exfoliated from liquid metals. Experience with materials characterisation techniques, particularly X-ray photoelectron spectroscopy (XPS) is essential, as is experience of the growth of 2D materials, device fabrication and testing techniques. Experience with atomic scale microscopy would also be an advantage.

### **Reporting Line**

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Reports to: Deputy PVC Research and Innovation

Direct reports: Nil

### **Organisational Accountabilities**

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RMIT University is committed to the health, safety and wellbeing of all its staff. RMIT and its staff must comply with a range of statutory requirements, including equal opportunity, occupational health and safety, privacy and trade practice. RMIT also expects staff to comply with its policy and procedures, which relate to statutory requirements and our ways of working.

Appointees are accountable for completing the necessary training on these matters and ensuring that their knowledge and the knowledge of their staff is up to date.

### **Key Accountabilities**

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- Conduct research in the area of 2D liquid metal exfoliated materials and characterisation with techniques including XPS and AFM.
- Prepare materials and sample surfaces and interfaces for investigation in a range of surface science facilities at RMIT and the Australian Synchrotron.
- Fabricate devices based on these 2D exfoliated materials and perform the associated testing
- Assist with the supervision of PhD students with projects in this area of research at RMIT.
- Prepare and present oral and written reports and approved publications on the research findings.

## Key Selection Criteria

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1. Demonstrated research track record on a national and international level in the field of 2D materials characterization and surface and interface science, as evidenced by high quality publications.
2. A high level of experience in a range of surface and interface characterisation methods, particularly photoelectron spectroscopy (XPS, UPS) and scanning probe microscopy (e.g. AFM).
3. Experience in fabricating and characterizing the electrical and electronic properties of 2D advanced materials and analyzing / interpretation of the resulting data.
4. Preparation of high-quality research publications and presentations – including research grant and funding applications.
5. Possess good interpersonal, written and oral communication skills.
6. Demonstrated ability to work co-operatively as a team member to achieve project goals, and as required, undertake the day-to-day supervision of PhD students.
7. Demonstrated ability to define, investigate and solve complex problems.
8. The ability to meet milestones and reporting deadlines during the course of a project

## Qualifications

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**Mandatory:** PhD in Electrical or Electronic Engineering; Physics, Physical Chemistry or Materials Science.

<b>Endorsed:</b>	Signature:  Name: Professor CF McConville Title: DPVC R&I Date: 05/10/18	<b>Approved:</b>	Signature:  Name: Professor PJ Coloe Title: PVC SEH Date: 05/10/18
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