



Position Description – Postdoctoral Research assistant

Position Details

Position Title:	Research Fellow (level A) in Potassium Ion Channel Simulations
Position Number:	1 position
College/Portfolio:	STEM College
School/Group:	School of Science
Campus Location:	Based at the city campus but may be required to work and/or be based at other campuses of the University.
Classification:	Academic Level A6
Employment Type:	Fixed Term (Research)
Time Fraction:	1.0

RMIT University

RMIT is a multi-sector university of technology, design and enterprise with more than 96,000 students and close to 10,000 staff globally. The University's mission is to help shape the world through research, innovation and engagement, and to create transformative experiences for students to prepare them for life and work.

<https://www.rmit.edu.au/about>

<https://www.universitiesaustralia.edu.au/university/rmit-university/>

Our three main campuses in Melbourne are located in the heart of the City, Brunswick and Bundoora. Other locations include Point Cook, Hamilton and Bendigo, two campuses in Vietnam (Hanoi and Ho Chi Minh City) and a centre in Barcelona, Spain. RMIT is a truly global university.

<https://www.rmit.edu.au/about/our-locations-and-facilities>

We are also committed to redefining our relationship in working with, and supporting, Indigenous self-determination. Our goal is to achieve lasting transformation by maturing our values, culture, policy and structures in a way that embeds reconciliation in everything we do. We are changing our ways of knowing, working and being to support sustainable reconciliation and activate a relationship between Indigenous and non-Indigenous staff, students and community. Our three campuses in Melbourne (City, Brunswick and Bundoora campuses) are located on the unceded lands of the people of the Woi Wurrung and Boon Wurrung language groups of the eastern Kulin Nation.

Why work at RMIT University

Our people make everything at the University possible. We encourage new approaches to work and learning, stimulating change to drive positive impact. Find out more about working at RMIT University, what we stand for and why we are an Employer of Choice.

<https://www.rmit.edu.au/careers>

We want to attract those who will make a difference. View RMIT's impressive standings in university rankings. <https://www.rmit.edu.au/about/facts-figures/reputation-and-rankings>

STEM College

The STEM College holds a leading position and expertise in the science, technology, engineering, mathematics and health (STEM) fields. We are uniquely positioned to influence and partner with industry, as never before.

STEM College is a community of exceptional STEM researchers, teachers, inventors, designers and game-changers, supported by talented professional staff. We offer higher education programs across all STEM disciplines at the Bachelor, Master and PhD levels, and ensure our students experience an education that is work-aligned and life-changing.

The College is renowned for its exemplary research in many STEM areas including advanced manufacturing and design; computing technologies; health innovation and translational medicine; nano materials and devices; and sustainable systems. Our brilliant researchers attract funding from government and industry sources.

Industry is at the heart of what we do. It ensures our research has real world impact, and our students are truly work-ready. Under the leadership of DVC STEM College & Vice President, Digital Innovation, we have established new hubs of industry-connected digital innovation and endeavour and are engaging with global STEM organisations at scale.

Our diversity and shared values empower our work, and we are proud of the College's inclusive, caring culture. We offer a safe, dynamic work environment, and support every member of our community to achieve their potential. The College appointed Victoria's first ever Dean of STEM, Diversity & Inclusion in 2020, and this role drives gender equity, diversity and inclusion strategies across the College.

STEM College employs 1,000 staff who deliver onshore and offshore programs to approximately 20,000 students.

We are here to positively impact the world and create the next generation of STEM leaders.

www.rmit.edu.au/seh

School of Science

The School of Science provides more than 45 bachelor and postgraduate programs to 5,000 students and undertakes world-class research across the disciplines of:

- biosciences and food technology
- applied chemistry and environmental science
- physics
- mathematical sciences
- geospatial sciences
- computer science (information technology and software engineering)

Across the City and Bundoora campuses, the School employs more than 260 academic staff (including 70 research intensive staff), 35 professional staff, as well as 430 casual and sessional staff, and supervises almost 400 Higher Degree by Research candidates.

Position Summary

Postdoctoral researcher in potassium ion channel simulations: The project represents an exciting opportunity for an outstanding postdoctoral researcher (or PhD graduate) to investigate the molecular mechanisms of potassium channels. The aim of this project is to describe conduction, inactivation and modulation mechanisms for BK (Big-conductance K), homologue MthK and related potassium channels, by employing advanced molecular dynamics methods. This is an NHMRC-funded project in collaboration with researchers at the University of Wollongong and Cornell University. The project will employ cutting-edge computational approaches using supercomputers, alongside structural and functional experiments, to examine channel mechanisms. The work is expected to be high impact, with related projects recently published in *Nature* and other top journals, and will provide excellent career possibilities for a talented and driven researcher.

Reporting Line

Reports to: Professor Toby Allen, School of Science, Physics

Organisational Accountabilities

RMIT University is committed to the health, safety and wellbeing of 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 training on these matters and ensuring their knowledge and the knowledge of their staff is up to date.

Key Accountabilities

Conduct research/scholarly activities under limited supervision either independently or as a member of a team including:

1. Carrying out computer simulations of ion channel systems with advanced analysis.
2. Actively staying up to date in the literature associated with the project.
3. Producing frequent updates of results and presenting these at regular meetings with supervisor, group and collaborators.
4. Writing high-quality paper drafts for publication.
5. Presenting results of the research at conferences as posters and oral presentations.
6. Participating in group research discussions and assisting in related projects.
7. Participating in supervision of higher degree by research candidates and undergraduate research students as needed.
8. Participating in HPC and data storage maintenance.
9. Contributing to external research funding submissions.
10. Potentially assisting in limited teaching activities within the Physics discipline, subject to funding agreements.

Key Selection Criteria

To be considered for the position the applicant must:

1. Hold (or be about to complete) a PhD in physics, physical chemistry or a closely related discipline (see Qualifications section).
2. Have a research background in computation in biophysics, condensed matter physics or physical chemistry.
3. Must have experience in atomistic simulations of membrane protein systems. A strong preference will be given to applicants with experience in simulations of ion channels.
4. Have experience in statistical mechanical theory and molecular dynamics simulations for biophysical problems using existing packages. Preference will be given to those with experience in NAMD/VMD and CHARMM.
5. Have a background in using enhanced sampling and free energy methods, such as Umbrella Sampling and Free Energy Perturbation, with expertise in replica methods, such as Replica Exchange with Solute Tempering and Metadynamics, being desirable.
6. Possess strong skills in supercomputing using both CPUs and GPUs, programming/scripting in a Unix environment, MD scripting for advanced simulations and analysis, as well as good visualisation skills.
7. Demonstrate ability to work well with experimental collaborators to achieve high impact publications.
8. Demonstrated experience in paper writing. Ability to independently form high quality paper drafts is essential.
9. Demonstrated experience in conference presentation of research findings.
10. Demonstrated high level written and verbal communication skills.
11. Ability to work autonomously whilst displaying a strong commitment to work in a team environment, including the demonstrated ability to confidently and effectively work with colleagues.
12. Demonstrated ability to meet deadlines and effectively manage varying workloads and respond to changing priorities as required.

Qualifications

Mandatory:

PhD in physics, physical chemistry, biology or a closely related discipline; provided the applicant has strong research background in computational biophysics methods. The applicant must have completed or be about to complete their PhD in one of these fields.

Note: Appointment to this position is subject to passing a Working with Children Check and other checks as required by the specific role. Maintaining a valid Working With Children Check is a condition of employment at RMIT.

Signed:

Prof. Toby Allen

Prof. Gary Bryant
Associate Dean, Physics