POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

Department of Radiology
Melbourne Medical School
Faculty of Medicine, Dentistry & Health Sciences

Research Fellow - MRI Physicist

POSITION NO	0052553
CLASSIFICATION	Level A
SALARY	$75,289 – 102,163 p.a.
SUPERANNUATION	Employer contribution: 9.5%
WORKING HOURS	Full-time
BASIS OF EMPLOYMENT	Fixed Term Position available for 3 years
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Professor Roland Bammer Email: roland.bammer@unimelb.edu.au *Please do not send your application to this contact*

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Position Summary

An MRI scientist is sought to contribute to the research capacity of the University of Melbourne's Quantitative Neuroimaging Centre (QNC) under the directorship of Prof. Roland Bammer. The centre is housed within the Department of Radiology at the Royal Melbourne Hospital. The QNC has access to imaging resources devoted to both patient care and research including magnetic resonance imaging (MRI), X-Ray/CT imaging. Researchers within our centre work closely with Radiologists with the aim to develop new techniques that benefit patients who suffer from neurological disorders. Our facilities include two 1.5T whole-body MRI systems, three 3.0T whole-body MRI systems and one 7.0T whole-body MRI system (housed at the Florey Institute), an MR sequence development environment (IDEA, ICE), and Siemens site scientist support. The appointee will work closely with a team of senior MRI scientists, with expertise in sequence development, image reconstruction and clinical application.

The appointee will develop, implement, evaluate and apply novel MRI pulse sequences using high-field and ultra-high-field MRI scanners with emphasis on imaging of the human brain and spinal cord.

The appointee will have a PhD in Biomedical Engineering, Physics or in a related field. The appointee must have experience with vendor-specific MRI software development (IDEA), a demonstrated ability to supervise students and work independently, and must have high level verbal, written, interpersonal and organisational skills.

This position represents an exciting opportunity to join a dynamic multi-disciplinary research team and participate in important research that has the potential to considerably improve the Neuroimaging research landscape in Australia. The appointee will report to the Centre's Director, Professor Roland Bammer. As a member of the Melbourne Medical School's academic team, the appointee will be expected to support the broad ethos of the School and the School's compliance with University policies and procedures, including environmental health and safety.

We foster a values-based culture of innovation and creativity to enhance the research performance of the University and to achieve excellence in teaching and research outcomes. We invest in developing the careers and wellbeing of our students and staff and expect all our staff to live our values of:

- Collaboration and teamwork
- Compassion
- Respect
- Integrity
- Accountability

1. Key Responsibilities

1.1 RESEARCH AND RESEARCH TRAINING

- To perform independent research and provide research support for the Centre for Quantitative Neuroimaging.
- Advance applications of novel imaging methods on high-field MRI of the human brain and spine, specifically with core expertise in segmented EPI, z-shimming and combined spin-echo and gradient-echo MR imaging as well as arterial spin label MR perfusion and angiographic imaging.
- MRI pulse sequence development and imaging reconstruction

- Scanner protocol implementation, pulse sequence compatibility, and consulting for multi-site projects
- Set up, apply and optimize novel MRI sequences in the study of neurological disorders
- Data analysis
- Supervision of graduate students

1.2 ENGAGEMENT

- Develop relationships and collaborate with national and international partners including researchers and clinicians to assist in building and maintain a strong collaborative research program
- Participate in community and professional activities related to the relevant disciplinary area

1.3 LEADERSHIP AND SERVICE

- Actively participate at Department and/or Faculty meetings and contribute to planning or committee work to build capacity in the School/discipline.
- Participate in community and professional activities related to the relevant disciplinary area including attendance and presentations at conferences and seminars
- Positive engagement in learning and career development of self and others
- Effective demonstration and promotion of University values including diversity and inclusion and high standards of ethics and integrity
- Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 5.

2. Selection Criteria

2.1 ESSENTIAL

- A PhD in the area of biomedical engineering, physics, or a related field.
- Experience with design, development, and implementation of novel pulse sequences on high-field MRI scanners, in particular with developing EPI sequences, z-shimming and quantitative magnetic susceptibility imaging to quantify brain iron levels on SIEMENS MRI systems.
- At least 3 years' experience with SIEMENS IDEA sequence development
- Experience with SIEMENS IDEA VE11C and XVA20
- Experience in MR imaging of the brain and spine
- Expert-level understanding of MRI physics, common MR pulse sequences, RF pulses, and associated principles of spatial encoding and MR image formation.
- Experience with operation and management of MRI scanners, including data management
- Excellent computer science, problem solving, and analytical skills
- Excellent skills in implementing, evaluating and establishing new imaging approaches in a clinical/research environment
- Excellent written and oral (scientific) communication skills
- Experience with independent writing of scientific conference abstracts and journal papers.
- Ethical scholar who values diversity and works effectively with individual differences

2.2 DESIRABLE

- Familiarity with human neuroanatomy and biophysical properties of brain tissue
- Familiarity with MRI of brain diseases
- Experience with SIEMENS ICE image reconstruction
- Understanding of factors that affect MRI image quality and data acquisition time
- Familiarity with diverse computer operating systems and programming environments (in particular experience with Unix/Linux, Matlab/Python and distributed high-performance computing highly preferred)
- Experience with data analysis (SPSS, R, Medcalc, SAS etc)
- Experience in supervision of higher degree research students

3. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to strive for excellence and reach the targets of Growing Esteem.

4. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

http://safety.unimelb.edu.au/topics/responsibilities/

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 RADIOLOGY

http://www.medicine.unimelb.edu.au/medicine-and-radiology

The Department of Medicine and Radiology is a large and diverse department in the Melbourne Medical School that undertakes research, postgraduate and undergraduate teaching within the University of Melbourne teaching hospitals. Radiology is situated within The Royal Melbourne Hospital and is adjacent to the Faculty of Medicine, Dentistry and Health Sciences. Areas of special expertise include: neurointerventional radiology, vascular and non-vascular intervention, hepatobiliary imaging and intervention, oncological diagnosis, trauma radiology, breast imaging, musculoskeletal imaging, as well as general and vascular ultrasounds. Located in Radiology, The Brain Imaging Laboratory was established in 1997 for the purposes of analysing imaging data acquired at the Royal Melbourne Hospital. Housed within the Dept of Radiology Library, it has proven to be of vital use for researchers and students undertaking neurological research.

5.2 MELBOURNE MEDICAL SCHOOL

http://medicine.unimelb.edu.au/

The Melbourne Medical School (MMS) was established in 1862 and has a substantial international reputation for its leadership in teaching and training, health research, policy and practice. The MMS is committed to working with the communities we serve to improve health and advance health care. We will do this through our teaching, learning, research, clinical care and advocacy.

The MMS is composed of nine clinical departments (Clinical Pathology, General Practice, Medical Education, Medicine and Radiology, Obstetrics and Gynaecology, Paediatrics, Psychiatry, Rural Health and Surgery) which are embedded within clinical health services throughout metropolitan Melbourne and rural Victoria.

The MMS delivers a suite of health-related graduate programs including the Doctor of Medicine (MD), the first professional entry master's level medical program in Australia. The Melbourne MD delivers a fresh approach to medical training and creates a new benchmark in 21st century medical education.

The MMS is committed to improving the wellbeing of the community through the discovery and application of new knowledge. The research effort of the school is highly collaborative and spans basic to translational research and involves over 800 graduate researchers and 1000 academic staff.

The MMS also actively participates in the public debate and advocacy around key health issues and policy based on our values of commitment, integrity, compassion, respect and service.

5.3 FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

www.mdhs.unimelb.edu.au

The Faculty of Medicine, Dentistry and Health Sciences has an enviable research record and is the University of Melbourne's largest faculty in terms of management of financial resources, employment of academic and professional staff, teaching of undergraduate and postgraduate (including research higher degree) students and the conduct of basic and applied research. The Faculty's annual revenue is $630M with approximately 55% of this income related to research activities.

The Faculty has a student teaching load in excess of 8,500 equivalent full-time students including more than 1,300 research higher degree students. The Faculty has approximately 2,195 staff comprising 642 professional staff and 1,553 research and teaching staff.

The Faculty has appointed Australia's first Associate Dean (Indigenous Development) to lead the development and implementation of the Faculty's Reconciliation Action Plan (RAP), which will be aligned with the broader University – wide plan. To enable the Faculty to improve its Indigenous expertise knowledge base, the Faculty's RAP will address Indigenous employment, Indigenous student recruitment and retention, Indigenous cultural recognition and building partnerships with the Indigenous community as key areas of development.

5.4 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at **http://about.unimelb.edu.au/careers**.

5.5 ADVANCING MELBOURNE

The University's strategic direction is grounded in its purpose. While its expression may change, our purpose is enduring: to benefit society through the transformative impact of education and research. Together, the vision and purpose inform the focus and scale of our aspirations for the coming decade.

Advancing Melbourne reflects the University's commitment to its people, its place, and its partners. Our aspiration for 2030 is to be known as a world-leading and globally connected Australian university, with our students at the heart of everything we do.

We will offer students a distinctive and outstanding education and experience, preparing them for success as leaders, change agents and global citizens.

We will be recognised locally and globally for our leadership on matters of national and global importance, through outstanding research and scholarship and a commitment to collaboration.

We will be empowered by our sense of place and connections with communities. We will take opportunities to advance both the University and the City of Melbourne in close collaboration and synergy.

We will deliver this through building a brilliant, diverse and vibrant University community, with strong connections to those we serve.

The means for achieving these goals include the development of the University of Melbourne's academic and professional staff and the capabilities needed to support a modern, world-class university. Those means require a commitment to ongoing financial sustainability and an ambitious infrastructure program which will reshape the campus and

our contribution to the communities we engage with. This strategy, and the priorities proposed, is centred around five intersecting themes; place, community, education, discovery and global.

5.6 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at **http://www.unimelb.edu.au/governance**