



POSITION DESCRIPTION

School of Physics
Faculty of Science

POSTDOCTORAL RESEARCH FELLOW IN META-OPTICAL DEVICES

The University plan seeks to increase the diversity of the workforce and the representation of women and Indigenous people in areas where they have been traditionally under-represented. Consistent with this, the School of Physics is seeking to increase the representation of Indigenous people and women in the academic workforce. Pursuant to a Special Measure under Section 12 (1) of the Equal Opportunity Act 2010 (Vic), the School will, therefore, **only consider applications from suitably qualified women or Indigenous candidates for this position.**

POSITION NO	0051099
CLASSIFICATION	Level A
SALARY	\$73,669 pa - \$99,964 pa (PhD Entry Level - \$93,1305 pa)
SUPERANNUATION	Employer contribution of 9.5%
WORKING HOURS	Full-time (1.0 FTE)
BASIS OF EMPLOYMENT	Fixed-Term
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 Kenneth Crozier Email: kcrozier@unimelb.edu.au <i>Please do not send your application to this contact</i>

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

Acknowledgement of Country

The University of Melbourne acknowledges the Traditional Owners of country throughout Australia. The University recognises the unique place held by Aboriginal and Torres Strait Islander peoples as the original custodians of country and their continued connection to the land, waterways, songlines and culture. The University respects all Aboriginal and Torres Strait Islander People and warmly embrace those students, staff, Elders and collaborators who identify as First Nations.

Position Summary

You will work on the experimental realisation of new nano-optical devices and their incorporation into optical systems. You will design and simulate meta-optical devices, undertake nanofabrication to realise the devices, and develop new methods to characterise them optically and/or electrically. You will conduct independent research, leading to the preparation and publication of research outcomes in conferences and journals.

You will be located in the School of Physics in the Faculty of Science and will be expected to be an active member of the School, collaborating with other researchers in the School and in the Department of Electrical and Electronic Engineering in the Melbourne School of Engineering. You may undertake small amounts of teaching and research supervision directly related to your area of research, as required. You will be based at The University of Melbourne Parkville campus and work under the supervision of the Chief Investigator.

You will join a node of the ARC Centre of Excellence in Transformative Meta-Optical Systems. The ARC Centre of Excellence for Transformative Meta-Optical Systems (TMOS) brings together five Australian and 13 leading international universities as well as Australian and global companies to create entirely new optics-based technologies with enormous market potential. The Centre has received \$34.9 million funding from the Australian Research Council to operate from 2020-2027.

TMOS will develop the next-generation of miniaturised optical systems with functionalities beyond what is conceivable today. By harnessing the disruptive concept of meta-optics, the Centre will overcome complex challenges in light generation, manipulation and detection at the nanoscale. The Centre brings together a trans-disciplinary team of world-leaders in science, technology and engineering to deliver scientific innovations in optical systems for the Fourth Industrial Revolution.

As a Centre, we strongly believe that diversity improves ideas and innovation and leads to better outcomes and productivity. Diversity and fostering a culture of inclusiveness will be a key contributor to the scientific excellence of TMOS. Along with other initiatives, we will provide carer grants to support our centre members with caring / family responsibilities to participate in professional activities.

TMOS aims to develop a multidisciplinary, dynamic, interactive and collaborative culture fostering future research leaders who thrive in academic excellence and are equipped with strong transferable skills. The centre will also offer a mentoring program for early career researchers while providing opportunities to hone other skills such as outreach, industry engagement, and building international networks.

The Centre aims to understand, design, develop and demonstrate novel nanoscale devices and their integration into larger optical systems and the Research Fellow will support this goal by working on one or more Centre projects. They will work closely with their supervisors who are Chief Investigators in the Centre, other members of their research group and staff and students

based at other nodes at Australian National University, RMIT University, University of Western Australia and University of Technology Sydney.

The School of Physics is strongly committed to supporting diversity and flexibility in the workplace. Applications for part-time or other flexible working arrangements will be welcomed and will be fully considered subject to meeting the inherent requirements of the position.

1. Key Responsibilities

1.1 RESEARCH AND RESEARCH TRAINING

You are expected to significantly contribute towards the research effort of the team and to develop your research expertise with an increasing degree of autonomy.

- ▶ Contribute to and publish academic papers and other scholarly outputs to a high academic standard in accordance with the research expectations of the University of Melbourne
- ▶ Facilitate collaboration between the various nodes of the Centre for Transformative Meta-Optical Systems
- ▶ Actively participate in research seminars and conferences to disseminate research findings as opportunities arise
- ▶ Contribute to the preparation, or where appropriate individual preparation of research proposal submissions to internal or external funding bodies as relevant
- ▶ Undertake administrative functions and obligations primarily connected with the staff member's area of research
- ▶ Contribute to, and assist in the co-supervision and training of research students primarily at undergraduate level
- ▶ Engage with relevant professional and industry bodies and stakeholders to foster collaborative partnerships
- ▶ Demonstrate initiative and conduct independent research
- ▶ Undertake other research activities as required

1.2 TEACHING AND LEARNING

- ▶ Contribute to and assist in the co-supervision, mentoring and training of postgraduate or research higher degree students in the appointee's area of expertise

1.3 LEADERSHIP AND SERVICE

- ▶ Actively contribute to the research culture of the School of Physics and of the research group by attendance and active participation in meetings and seminars associated with the research work of the project, as well as School meetings and seminars
- ▶ Effective demonstration and promotion of University values including diversity and inclusion and high standards of ethics and integrity
- ▶ Actively contribute to School activities such as Open day to promote student engagement

1.4 OTHER DUTIES

- ▶ Undertake administration primarily relating to the activities of the role
- ▶ Perform other tasks as requested by the supervisor or the Head of School
- ▶ Actively participate in the University Professional Development Framework
- ▶ Ensure an up-to-date record of University compliance courses, such as, but not limited to, Appropriate Workplace Behaviour, PDF for Staff and Supervisors, OH & S training courses
- ▶ Occupational Health and Safety (OH&S) responsibilities as outlined in section 4

2. Selection Criteria

2.1 ESSENTIAL

- ▶ A PhD (or close to completion of a PhD) in a relevant area of physics or electrical and electronic engineering, including nanoscience or optics
- ▶ A demonstrated aptitude for research, with a sound publication record in relevant areas, commensurate with experience and opportunities
- ▶ Demonstrated ability in experimental cleanroom nanofabrication and characterisation and/or developing and using custom optical systems
- ▶ Excellent ability to work co-operatively and positively in a multi-disciplinary research-based team environment and liaise with people from diverse backgrounds
- ▶ Excellent interpersonal and both written and oral communication skills in English.
- ▶ Demonstrated excellent organisational skills to meet deadlines and bring projects to a timely completion
- ▶ Demonstrated ability to develop, administer and see through to completion appropriately designed research projects with limited supervision
- ▶ Capacity to work with people from diverse cultural backgrounds

2.2 DESIRABLE

- ▶ Expertise in relevant theory and modelling
- ▶ Expertise in experimental semiconductor device physics and electronics
- ▶ Ability to supervise and mentor research students
- ▶ A national or international research profile, as evidenced by publication record, active collaborations, invitations to speak and/or service to relevant professional bodies
- ▶ The ability to manage collaborations between researchers at different locations
- ▶ The ability to attract funding through competitive grant applications, commensurate with experience and opportunities

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 SCHOOL OF PHYSICS

www.physics.unimelb.edu.au/

The University of Melbourne's School of Physics is one of Australia's leading Physics Schools. It has achieved this status through the high quality of its research and teaching programs. The School offers a wide range of physics subjects to undergraduate and postgraduate students, and performs research in the following areas: Astrophysics, Atomic, Molecular and Optical Physics, Experimental Condensed Matter Physics, Experimental Particle Physics, Materials Science, Physical Biosciences, Theoretical Condensed Matter Physics and Theoretical Particle Physics.

The School of Physics hosts the following ARC Centre of Excellence groups:

- ▶ ARC Centre of Excellence for Transformative Meta-Optical Systems (TMOS)
- ▶ ARC Centre of Excellence for Dark Matter Particle Physics
- ▶ Melbourne nodes of the ARC Centre of Excellence for Gravitational Wave Discovery
- ▶ ARC Centre of Excellence in All Sky Astrophysics

- ▶ ARC Centre of Excellence for Quantum Computation and Communication Technology (CQC²T)

The School also plays a major role in the Australian Synchrotron research program, and in the development of the Stawell Underground Physics Laboratory.

Currently some 30 academics, 51 research-only staff, more than 95 postgraduate students and 72 associates supported by 23 professional staff make up the School of Physics. The School additionally hosts an Australian Laureate Fellow, 5 ARC Future Fellows, and 4 ARC Discovery Early Career Researcher. Skilled technical staff operate, maintain and develop complex instrumentation and equipment to support the teaching and research activities of the School. The School is located in the David Caro building on the Swanston Street boundary of the University campus. The Head of School and majority of the Professional staff are housed on the ground floor of the building to act as the first point of contact for students, staff and visitors.

5.2 FACULTY OF SCIENCE

<http://www.science.unimelb.edu.au>

Science at the University of Melbourne is among the most highly ranked Faculties of Science in Australia*. Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 53,000 alumni and is one of the largest faculties in the University comprising seven schools: BioSciences, Chemistry, Earth Sciences, Ecosystem and Forest Sciences, Geography, Mathematics and Statistics, and Physics.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs, Australian Mathematical Sciences Institute (AMSI) and home to numerous Centres.

Science manages more than \$315 million of income per annum, with a staff base in the order of 290 professional staff, and more than 630 academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 9,700 undergraduate and 2,400 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is a leader in research, contributing approximately \$80 million in HERDC income per annum. The Faculty of Science is highly research focused, performing strongly in the ARC competitive grants schemes, often out-performing the national average. The Faculty of Science is currently growing its competitiveness and standing in the NHMRC space.

* *Based on 2018-19 subject rankings by QA and Time Higher Education*

5.3 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>.

5.4 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.

5.5 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>