Australian National University

Position Description

College/Division:	ANU College of Science (COS)
Faculty/School/Centre:	Research School of Physics and Engineering (RSPE)
Department/Unit:	Nonlinear Physics Centre
Position Title:	Postdoctoral Fellow
Classification:	Academic Level A
Position No:	
Responsible to:	ARC Future Fellow, Nonlinear Physics Centre
Number of positions that report to this role:	
Delegation(s) Assigned:	

PURPOSE STATEMENT:

The Nonlinear Physics Centre (NLPC) of the Research School of Physics and Engineering (ANU) is engaged in the fundamental and applied research on tunable and nonlinear metamaterials and their applications in various frequency ranges. The Postdoctoral Fellow will support the ARC Discovery Project Project DP160101585 "*Tunable metamaterials for terahertz and infrared applications*" in the experimental and computational investigation of application of resonant microstructures for controlling THz waves.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Postdoctoral Fellow will work directly with the Chief Investigator (CI) to support the ARC Discovery Project DP160101585 "*Tunable metamaterials for terahertz and infrared applications*". The Postdoctoral Fellow will collaborate with other researchers in the Nonlinear Physics Centre as well as national and international collaborators.

Role Statement:

Under the broad direction of the ARC Future Fellow, Nonlinear Physics Centre, the Postdoctoral Fellow will:

1. Undertake independent research in the area of Nonlinear Physics, especially in relation to ARC Discovery Project "Tunable metamaterials for terahertz and infrared applications" to develop functional structures for manipulation of terahertz waves. This includes working as part of a team on an externally funded project subject to deadlines.
2. Publish original and innovative results in refereed journals, present research at academic seminars and at national and international conferences, and collaborate with other researchers at a national level
3. Work within a team to investigate the enhancement of light-mater interactions in micrometer scale structures and metamaterials.
4. Collaborate with senior staff to actively seek and secure external funding, assist to prepare and submit research proposals to external funding bodies as appropriate
5. Subject to the requirements of the funding source and where an opportunity exists, the occupant may be encouraged/asked to contribute to the teaching activities of the School at the undergraduate and graduate levels. This includes, but is not limited to, the preparation and delivery of lectures and tutorials, the preparation of online material, marking and assessment, consultations with students or acting as subject coordinators
6. Supervise students working on individual or group projects at undergraduate, honours, graduate-coursework levels. Assist with supervision of research students and research support staff in your research area
7. Actively contribute to all aspects of the operation of the School and assist in outreach activities including to prospective students, research institutes, industry, government, the media and the general public
8. Maintain high academic standards in all education, research and administrative endeavours
9. Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity

10. Undertake other duties as required, consistent with the classification of the position.

Skill Base

A **Level A Academic** will normally have completed four years of tertiary study in the relevant discipline and/or have equivalent qualifications and/or research experience.

In many cases a position at this level will require an honours degree or higher qualifications or equivalent research experience

Research experience may have contributed to or resulted in publications, conference papers, reports or professional or technical contributions that give evidence of research potential.

SELECTION CRITERIA:

1. A PhD (or awarding of a PhD within six months of appointment commencement) in Physics or equivalent qualifications and experience in a related area, with a track record of independent research in the field of metamaterials or nanophotonics as evidenced by publications in peer-reviewed journals and presentations at conferences
2. Evidence of the ability to articulate and prosecute innovative research in the following fields:
   -Micro-fabrication of metallic and dielectric metamaterials, including photo lithography, various depositions, etching, lift-off techniques;
   -Design of composite structures for manipulating electromagnetic waves;
   -Measurement of transmission spectra at terahertz frequency ranges using THz time-domain spectroscopy.
   -Knowledge of the terahertz time-domain spectroscopy with capability to reconfigure and re-align the setup.
3. An ability and commitment to contribute to bids for competitive external funding to support individual and collaborate research activities
4. Ability and willingness to teach at all levels within the scope of the project
5. The ability to assist in the supervision of students working on research projects
6. Demonstrated capacity to engage in collaborative research projects of combined theoretical and experimental nature, to any required deadlines
7. Excellent oral and written English language skills and a demonstrated ability to communicate and interact effectively with a variety of staff and students in a cross-disciplinary environment and to foster respectful and productive working relationships with staff, students and colleagues at all levels
8. A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

Supervisor/Delegate Signature:		**Date:**	
Printed Name:		**Uni ID:**	

References:

General Staff Classification Descriptors

Academic Minimum Standards

Pre-Employment Work Environment Report

Position Details

College / Div / Centre	COS	**Dept / School / Section**	RSPE
Position Title	Postdoctoral Fellow	**Classification**	Academic Level A
Position No.		**Reference No.**	

In accordance with the Occupational Health and Safety Act 1991 the University has a duty of care to provide a safe workplace for all staff.

- This form must be completed by the supervisor of the advertised position and forwarded with the job requisition to Appointments and Promotions Branch, Human Resources Division. Without this form jobs cannot be advertised.
- This form is used to advise potential applicants of work environment issues prior to application.
- Once an applicant has been selected for the position consideration should be given to their inclusion on the University's Health Surveillance Program where appropriate – see . http://info.anu.edu.au/hr/OHS/__Health_Surveillance_Program/index.asp Enrolment on relevant OHS training courses should also be arranged – see http://info.anu.edu.au/hr/Training_and_Development/OHS_Training/index.asp
- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see ' Employment Medical Procedures' at http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp

Potential Hazards

- Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a **regular** or **occasional** part of the duties.

TASK	regular	occasional	TASK	regular	occasional
key boarding	☒	☐	laboratory work	☒	☐
lifting, manual handling	☐	☐	work at heights	☐	☐
repetitive manual tasks	☐	☐	work in confined spaces	☐	☐
catering / food preparation	☐	☐	noise / vibration	☐	☐
fieldwork & travel	☐	☐	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☒	☐	nuclear particles	☐	☐
laser	☒	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☒	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor's Signature:		**Print Name:**		**Date:**	

Australian National University

Position Description

College/Division:	ANU College of Science (COS)
Faculty/School/Centre:	Research School of Physics and Engineering (RSPE)
Department/Unit:	Nonlinear Physics Centre
Position Title:	Research Fellow
Classification:	Academic Level B
Position No:	
Responsible to:	ARC Future Fellow, Nonlinear Physics Centre
Number of positions that report to this role:	
Delegation(s) Assigned:	

PURPOSE STATEMENT:

The Nonlinear Physics Centre (NLPC) of the Research School of Physics and Engineering (ANU) is engaged in the fundamental and applied research on tunable and nonlinear metamaterials and their applications in various frequency ranges. The Research Fellow will support the ARC Discovery Project Project DP160101585 "*Tunable metamaterials for terahertz and infrared applications*" in the experimental and computational investigation of application of resonant microstructures for controlling THz waves.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Research Fellow will work directly with the Chief Investigator (CI) to support the ARC Discovery Project DP160101585 "*Tunable metamaterials for terahertz and infrared applications*". The Research Fellow will collaborate with other researchers in the Nonlinear Physics Centre as well as national and international collaborators.

Role Statement:

Under the broad direction of the ARC Future Fellow, Nonlinear Physics Centre, the Research Fellow will:

1. Undertake independent research in the area of Nonlinear Physics, especially in relation to ARC Discovery Project "Tunable metamaterials for terahertz and infrared applications" to develop functional structures for manipulation of terahertz waves. This includes working as part of a team on an externally funded project subject to deadlines and being primarily responsible for project delivery in some areas.
2. Publish original and innovative results in refereed journals, present research at academic seminars and at national and international conferences, and collaborate with other researchers at a national level
3. Work within a team to investigate the enhancement of light-mater interactions in micrometer scale structures and metamaterials.
4. Actively seek and secure external funding including the preparation and submission of research proposals to external funding bodies.
5. Subject to the requirements of the funding source and where an opportunity exists, the occupant may be encouraged/asked to contribute to the teaching activities of the School at the undergraduate and graduate levels. This includes, but is not limited to, the preparation and delivery of lectures and tutorials, the preparation of online material, marking and assessment, consultations with students, acting as subject coordinators and the initiation and development of course/subject material.
6. Supervise students working on individual or group projects at undergraduate, honours, graduate-coursework levels. Supervise less senior academic staff and research support staff in your research area. Assist with supervision of research students.
7. Actively contribute to all aspects of the operation of the School and assist in outreach activities including to prospective students, research institutes, industry, government, the media and the general public
8. Maintain high academic standards in all education, research and administrative endeavours
9. Comply with all ANU policies and procedures, and in particular those relating to work health and safety and equal opportunity

10. Undertake other duties as required, consistent with the classification of the position.

Skill Base

A **Level B Academic** will normally have completed a relevant doctoral qualification or have equivalent qualifications or research experience.

In addition he/she may be expected to have had post-doctoral research experience that has resulted in publications, conference papers, reports or professional or technical contributions that give evidence of research ability.

SELECTION CRITERIA:

1. A PhD in Physics or related area, with a track record of independent research in the field of metamaterials or nanophotonics as evidenced by publications in peer-reviewed journals and presentations at conferences, a record of developing and maintaining collaborations and by other measures such as awards, invitations to give talks at leading conferences etc.
2. Evidence of the ability to articulate and prosecute innovative research in the following fields and a vision for the activities they will undertake at the ANU:
   -Micro-fabrication of metallic and dielectric metamaterials, including photo lithography, various depositions, etching, lift-off techniques;
   -Design of composite structures for manipulating electromagnetic waves;
   -Measurement of transmission spectra at terahertz frequency ranges using THz time-domain spectroscopy.
   -Knowledge of the terahertz time-domain spectroscopy with capability to reconfigure and re-align the setup.
3. An ability and commitment to win bids for competitive external funding to support individual and collaborate research activities
4. Ability and willingness to teach at all levels within the scope of the project
5. The ability to supervise and graduate high quality PhD/Masters research students
6. Demonstrated capacity to engage in collaborative research projects of combined theoretical and experimental nature, meeting deadlines and being primarily responsible for delivery of the project in some areas
7. Excellent oral and written English language skills and a demonstrated ability to communicate and interact effectively with a variety of staff and students in a cross-disciplinary environment and to foster respectful and productive working relationships with staff, students and colleagues at all levels
8. A demonstrated understanding of equal opportunity principles and policies and a commitment to their application in a university context.

Supervisor/Delegate Signature:		**Date:**	
Printed Name:		**Uni ID:**	

References:

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lifting, manual handling	☐	☐	work at heights	☐	☐
repetitive manual tasks	☐	☐	work in confined spaces	☐	☐
catering / food preparation	☐	☐	noise / vibration	☐	☐
fieldwork & travel	☐	☐	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☒	☐	nuclear particles	☐	☐
laser	☒	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☒	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor's Signature:		**Print Name:**		**Date:**	