

Candidate Information

Position:	Research Fellow
School/Department:	Centre for Wireless Innovation
Reference:	23/111063
Closing Date:	Monday 17 July 2023
Salary:	£36,333 per annum
Anticipated Interview Date:	Thursday 27 July 2023
Duration:	Fixed Term for 2 years, to end no later than 31 December 2025

JOB PURPOSE:

For the design and implementation of mmWave reconfigurable intelligent surface (RIS) and development of experimental setup to test and verify the mmWave communication. This will be carried out as part of the U.S.-Ireland R&D Partnership project REFLECT-MMWAVE, aiming to perform experimentations using reconfigurable, coherent, and active surfaces in mmWave frequency ranges.

This is a unique opportunity to build the next-generation RIS systems and work at one of the leading institutions in the UK in microwave and mmWave technology, the Centre for Wireless Innovation – Queen's University Belfast, collaborating with a UK-wide team of academics and industry partners

MAJOR DUTIES:

1. Undertake research under supervision within REFLECT-MMWAVE and contribute to investigating the electromagnetic properties of novel reconfigurable mmWave radiators as a member of the collaborative research team.
2. Design, develop and refine RIS unit-cell with extraordinary reflection characteristics.
3. Design, develop and refine mmWave surfaces and front-end radio electronics units for efficient operation.
4. Carry out analyses, experimental tests, critical evaluation, implementation, and interpretations of experimental data and the literature using methodologies and other techniques appropriate to the field.
5. Carry out educational supervision of the Centre for Wireless Innovation's (CWI) PhD students under the guidance of the project investigator team.
6. In consultation with project investigators and collaborators, prepare material for publication in prestigious leading journals and presentations at major international conferences to disseminate and publicise research findings.
7. Produce high-quality research outputs consistent with project aims and commensurate with the career stage. This includes collaborating with the REFLECT-MMWAVE team (as appropriate) on outputs.
8. In consultation with the project team, promote research milestones and outputs at local, national and international conferences, workshops, and promotion events.
9. Assist investigator team members in preparing funding proposals and applications to external bodies.
10. Undertake supplementary duties relevant to the success of the REFLECT-MMWAVE at QUB, including presentation of regular progress reports as required.
11. Keep abreast of new developments in specialism and related research areas/disciplines.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in a relevant area.

2. Able to demonstrate substantial experience in the following:
 - Design and implementation experience with microwave/mmWave devices, antennas, and surfaces
 - Experience of antenna, transmission line, and electromagnetic theories.
 - Experience of handling and testing microwave and mmWave devices, antennas, and antenna arrays.
 - Experience of using RF design and simulation software such as CST Microwave Studio, Ansys HFSS and/or Keysight ADS.
 - Experience of conducting measurements and characterising devices, circuits and antennas using measurement equipment such as vector network analysers, spectrum analysers, power meters etc.
 - Experience with far-field and near-field antenna measurements.
3. Strong publication record in line with the career stage in prestigious leading journals and presentations at major international conferences.
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Evidence of strong analytical and problem-solving skills.
7. Ability to communicate complex information effectively in oral and written format.
8. Ability to build relationships to develop internal and external networks.

DESIRABLE CRITERIA:

1. A PhD in the field of antennas and propagation.
2. Hold a master's in the field of antennas and propagation.
3. Evidence of:
 - Experience of using high-power high-frequency electronics.
 - Experience using PCB prototyping software, such as LDKF CircuitCAM, LDKF board master, Altium Designer, AutoCAD etc.
 - Experience of using prototyping methods including, chemical etching and photolithography.
 - Experience with MATLAB and/or Python.
4. Project management experience.
5. Experience in funding proposal writing.