

Candidate Information

Position:	Research Fellow
School/Department:	Centre for Wireless Innovation
Reference:	23/110760
Closing Date:	Monday 17 April 2023
Salary:	£35,333 per annum
Anticipated Interview Date:	Tuesday 2 May 2023
Duration:	36 months

JOB PURPOSE:

To design and implement devices and antennas and investigate around electromagnetic propagation. To support the research team within the Electromagnetic Environment (EME) Hub, aiming to develop RF and Microwave components using reconfigurable, coherent, active surfaces and passive sources.

This is a unique opportunity to build the next generation electromagnetic systems and work at one of the leading institutions in the UK in microwave 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 the specific research project and, as a member of the collaborative research team, contribute to the investigation of electromagnetic properties of novel RF and microwave devices and antennas.
2. Design, develop and refine microwave devices for high-power radio signal transmission, develop millimetre-wave surfaces, and front-end units for efficient operation.
3. Carry out analyses, experimental tests, critical evaluation and implementation, and interpretations of experimental data and the literature using methodologies and other techniques appropriate to the field.
4. Carry out educational supervision of the EME Hub PhD students under the guidance of the project investigator team.
5. 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.
6. Produce high-quality research outputs consistent with project aims and commensurate with the career stage. This includes collaborating with the wider EME Hub team (as appropriate) on outputs.
7. In consultation with the project team, promote research milestones and outputs at EM workshops and promotion events.
8. Assist EM Hub members in preparing funding proposals and applications to external bodies.
9. Undertake supplementary duties relevant to the success of the EME Hub at QUB, including the presentation of regular progress reports and additional training and development activities as required.
10. Keep abreast of new developments in specialism and related research areas/disciplines. Undertake supplementary duties relevant to the success of the project, including administrative duties and additional training and development activities as required.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a PhD in a relevant area.
2. Strong publication record commensurate with stage of career.

3. At least 3 years of relevant research experience, including:
 - Design and implementation experience with microwave devices, antennas and surfaces;
 - Demonstrable knowledge of antenna theory, transmission line theory and electromagnetic theory;
 - Experience using RF design and simulation software such as CST Microwave Studio, Ansoft HFSS, Keysight ADS and/or FEKO; and
 - Experience in conducting measurements of circuits and antenna systems using measurement equipment such as vector network analysers and spectrum analysers.
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:
 - Knowledge of high-power high frequency electronics;
 - Experience using PCB prototyping software, such as LDKF CircuitCAM, LDKF board master, Altium Designer, AutoCAD etc;
 - Previous use of prototyping methods including, chemical etching and photolithography;
 - Experience with MATLAB and/or Python; and
 - Experience in far-field/near-field measurements.
4. Project management experience.
5. Experience in funding proposal writing.