

## Candidate Information

<b>Position:</b>	Research Fellow
<b>School/Department:</b>	Centre for Wireless Innovation
<b>Reference:</b>	23/111042
<b>Closing Date:</b>	Monday 3 July 2023
<b>Salary:</b>	£36,333 - £41,931 per annum
<b>Anticipated Interview Date:</b>	Tuesday 18 July 2023
<b>Duration:</b>	Fixed term until 28 February 2025

### JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the £12m project "Realising Enabling Architectures and Solutions for Open Networks (REASON)", funded by the Department of Digital, Culture, Media and Sport (DCMS).

Assist in the creation of a new generation of electromagnetic signal propagation manipulating tools, such as Reconfigurable Intelligent Surfaces (RISs) and Reconfigurable Intelligent Edges (RIEs), that will work as part of future open networks and become an active member of the Centre for Wireless Innovation and the School of EEECS at QUB, assisting in the production of world leading research output.

### MAJOR DUTIES:

1. Formulate new antenna designs for emerging propagation manipulating tools such as RIS and RIE.
2. Carry out the full-wave simulations (using CST Microwave Studio) of RIS and RIE architectures and build physical demonstrators of the designs.
3. Characterize the developed propagation manipulating tools and structures using specialized microwave and millimetre-wave equipment, including vector network analysers, near-field and far-field anechoic chambers.
4. In collaboration with other team members, integrate the propagation manipulating tools with wireless channel models for communication and sensing applications.
5. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to the proposed research topic.
6. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
7. Prepare, often in consultation with the supervisor, material for publication in national and international journals and presentations at international conferences.
8. Assist grant holders in the preparation of funding proposals and applications to external bodies.
9. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget.
10. Carry out occasional undergraduate (final year, MEng) project supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of the academic staff.

### ESSENTIAL CRITERIA:

1. Have, or be about to obtain, a PhD in Electronics, Electrical Engineering, or a closely related discipline.
2. Substantial research experience in electromagnetic theory and antennas or related areas.
3. Experience in designing reconfigurable arrays and surfaces (RIS, metasurface, or similar).
4. Evidence of strong publication record commensurate with stage of career.
5. Evidence of an understanding of microwave and mm-wave reconfigurable circuits design and characterization
6. Demonstrable ability to:
  - contribute to research management and administrative processes
  - contribute to the School's outreach programme by links with industry, community groups etc.

7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Strong communication skills with a demonstrable ability to communicate complex information clearly.
9. Proven ability to build contacts and participate in internal and external networks.
10. Ability to travel and present at project meetings, and international conferences.

**DESIRABLE CRITERIA:**

1. Able to demonstrate:
  - Experience with reconfigurable intelligent surfaces.
  - Background in holographic beamforming at microwave and millimetre-wave frequencies.
  - Experience in using RF design and simulation software, such as CST Microwave Studio.
  - Experience with microwave and millimetre-wave measurements, including using vector network analysers, near-field and/or far-field chambers for antenna characterization.
  - Experience with the design and characterization of reconfigurable microwave and mm-wave circuits.
2. Experience in EU or RCUK projects, in particular in project task management and reporting through periodic deliverables.
3. Experience in producing timely technical documentation on research projects (deliverables, reports).
4. Experience with presentations of research outputs in conferences, workshops, or seminars.