

Candidate Information

Position: Research Assistant (Part Time, 0.6 FTE)
School/Department: School of Electronics, Electrical Engineering and Computer Science
Reference: 26/113701
Closing Date: Monday 26 October 2026
Salary: £36,366 - £41,727 per annum (to be pro-rated for 0.6 FTE)
Anticipated Interview Date: Wednesday 4 November 2026
Duration: Fixed Term - Part Time (0.6 FTE); available for 12 months or until 31 December 2027, whichever is soonest.

JOB PURPOSE:

The post-holder will contribute to an Invest NI Proof of Concept project focused on the development of advanced antenna and RF interconnect technologies for sub-terahertz applications.

The project aims to develop compact, high-performance antenna and interconnect solutions for next-generation high-frequency sensing and radar systems. The Research Assistant will work closely with the project team on electromagnetic design, simulation, optimisation, fabrication and experimental characterisation of antennas and RF interconnect structures operating at D-band frequencies.

The role provides an opportunity to gain practical experience in advanced antenna design, high-frequency measurements and technology development leading towards an industrial demonstrator.

MAJOR DUTIES:

1. Carry out literature and technology reviews relating to D-band/sub-THz antennas, RF interconnects, waveguides, packaging and radar/sensing systems.
2. Assist in the design and simulate antennas, waveguide structures, transitions and RF interconnects operating at approximately 110–170 GHz, with particular emphasis on the 122 GHz frequency range.
3. Develop and optimise compact antenna and interconnect structures using full-wave electromagnetic simulation tools such as CST Microwave Studio and/or Ansys HFSS.
4. Investigate different antenna feeding and interconnect approaches, including waveguide, SIW, air-filled waveguide, microstrip-to-waveguide transitions and other low-loss RF structures.
5. Support the design of antenna elements and arrays suitable for future high-resolution radar and sensing applications.
6. Prepare designs for fabrication using appropriate manufacturing techniques, including CNC machining, PCB fabrication, additive manufacturing and/or other advanced manufacturing processes, as appropriate to the project.
7. Assist with the assembly, measurement and experimental validation of fabricated antennas and RF components using high-frequency measurement equipment and facilities.
8. Compare simulated and measured results, identify sources of discrepancies and propose design improvements.
9. Maintain accurate records of simulation models, design parameters, fabrication information and measurement results to ensure reproducibility.
10. Contribute to the development of a proof-of-concept demonstrator, working with academic colleagues and industrial collaborators to translate antenna and RF designs into a practical system.
11. Present research progress regularly to the project team and contribute to technical reports, presentations, publications and project documentation.
12. Work collaboratively with researchers, technical staff and industrial partners and, where required, contribute to meetings and activities involving external collaborators.
13. Undertake other duties appropriate to the grade and nature of the post as required by the Principal Investigator.

ESSENTIAL CRITERIA:

1. A 2:1 or above BSc Honours degree (or equivalent) in Electrical/Electronic Engineering, RF Engineering, Microwave Engineering, Telecommunications Engineering or a closely related discipline.
2. Specific, relevant experience of conducting engineering analysis and interpreting simulation or experimental results.
3. Practical experience using at least one full-wave electromagnetic simulation package, such as CST Microwave Studio, Ansys HFSS or an equivalent tool.
4. Knowledge of electromagnetic theory, RF/microwave and antenna design.
5. Good numerical, analytical and problem-solving skills.
6. Good written and oral communication skills, with the ability to present technical information clearly.
7. A strong ability to work independently while also contributing effectively to a multidisciplinary research team.
8. A high degree of accuracy and attention to detail, particularly in simulation, experimental work and technical documentation.
9. A team player who is open-minded and prepared to work closely with academic researchers, technical staff and industrial collaborators.
10. Willingness to undertake occasional travel to meet with project partners or attend relevant technical activities, where required.

DESIRABLE CRITERIA:

1. MSc degree in a relevant engineering discipline, or equivalent relevant research/industrial experience.
2. Experience with CST Microwave Studio and/or Ansys HFSS, including parametric modelling and optimisation.
3. Experience with RF fabrication and experimental characterisation, including VNA measurements, antenna measurements, waveguide measurements or millimetre-wave/sub-THz measurement systems.
4. Experience with antenna arrays, radar systems, RF interconnects, transitions or antenna-in-package technologies.
5. Experience with CAD tools and/or manufacturing processes relevant to high-frequency RF components.