



## Candidate Information

<b>Position:</b>	Research Fellow in Device Integration
<b>School/Department:</b>	Centre for Quantum Materials and Technology (CQMT)
<b>Reference:</b>	23/111482
<b>Closing Date:</b>	Monday 15 January 2024
<b>Salary:</b>	£37,841 - £41,331 per annum
<b>Anticipated Interview Date:</b>	Tuesday 30 January 2024
<b>Duration:</b>	Full Time - Fixed Term until 30/11/2026

### JOB PURPOSE:

To be a highly productive, ambitious and collaborative member of the UKRI Strength in Places Fund Programme Smart Nano NI who will assist in the delivery of research, designs and prototypes of photonic devices.

The research will encompass the use and development of integrated vision / pick and place technology and processes to manipulate and handle and integrate off the shelf and custom parts in the millimetre to micron scale to realise devices to tackle challenges from telecommunications, data storage and MedTech.

You will have understanding and hands-on experience engineering designs, circuitry, system control, and integration, with a special emphasis on mechatronic and robotic systems.

Your track record will demonstrate proficiency in the design, fabrication, and testing of innovative devices. Successful applicants will have responsibilities in independent research, supervision, planning, day to day lab management and experience liaising with external suppliers and fabricators to realise finished, deliverable projects for industrial collaborations supporting the Smart Nano NI project.

### MAJOR DUTIES:

1. To lead on the research/development of device integration processes and equipment to enable components/prototypes to be utilised for photonic sensing and imaging devices.
2. To develop research and development plans to support creation of new idea/concepts and devices.
3. Produce high quality research outputs consistent with project aims and commensurate with career stage. This will include collaborating and co-authoring with PI and project team (as appropriate) on outputs.
4. Identify and develop opportunities to develop impact case studies arising from the research.
5. Disseminate research findings at appropriate national and international technical events and conferences.
6. Within the research project, take the lead in setting research objectives and programme of implementation.
7. Direct, coach and develop more junior research staff and technical support where appropriate.
8. Ensure that research projects are completed on time and within budget.
9. Contribute through limited teaching such as undergraduate project supervision.
10. Be responsible for practical work where applicable, and advise students on techniques.

### ESSENTIAL CRITERIA:

1. A degree in mechanical, electrical or biomedical engineering or a related discipline.
2. Normally have, or be about to obtain, a PhD/EngD in mechanical, electrical or biomedical engineering or a related discipline or have an at least 3 years relevant industrial experience (NB 'About to obtain' is normally defined as within 3 months of application date).
3. Specific, relevant research/development experience to include:
  - Demonstrated expertise engineering designs
  - Demonstrated expertise in electronic circuitry, system control and integration
  - Demonstrated expertise in mechatronic and/or robotic systems.

4. Experience performing original research, demonstrated through a record of invention, original publications in top-tier journals, and conference papers and presentations or IP filings.
5. Ability to devise, advise on and manage related research programmes.
6. Experience, achievement and growing reputation in the discipline, reflected in relevant national committee memberships and/or involvement in national research events.
7. Ability to supervise work of others in research team.
8. Ability to communicate complex concepts/ information effectively verbally and through appropriate presentation modes.
9. Ability to manage resources.
10. Demonstrable intellectual ability.
11. Commitment to continuous professional development.

**DESIRABLE CRITERIA:**

1. A PhD/EngD background of research/development in the area of optical / photonic devices/systems.
2. Evidence or demonstrated experience of optical/photonic device/systems.
3. Evidence or demonstrated experience of optical/photonic device/systems in medtech.
4. Evidence of experience with photomask layout, PCB-layout, and/or mechanical design (SolidWorks or Fusion 360).
5. Experience with design of experiments, device testing, data and analysis acquisition, and/or programming (MATLAB, Python, LabView).
6. Evidence of experience in using software for optical/photonic device simulations using, for example, COMSOL, Zemax Optical Design, Matlab/Simulink, Ansys/Lumerical codes etc.
7. A sense of commercial awareness, with knowledge and experience of procedures involving filing a patent and licence agreement.
8. Evidence of engagement in education activities such as undergraduate teaching support or project supervision or its direct support or other recognised teaching duties.
9. Evidence or experience of working with or developing industry collaborative projects/programmes.
10. Contributed/invited talks at significant international conferences.
11. Presentations to non-specialist audiences.
12. Evidence of delegated resource management responsibility.
13. Evidence of assuming roles within a larger research team.