

Job Description

Post title: Research Fellow in Integrated MEMS/NEMS-Photonics Platform for Secure Communication

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Standard Occupation Code:	2119 – Natural and social science professionals
School / Department:	Electronics and Computer Science (ECS)
Faculty / Directorate:	Engineering and Physical Sciences
Job Family:	Education, Research and Enterprise (ERE)
Grade:	Level 4
ERE Pathway (if applicable):	Research
Post reporting to:	Dr Yoshishige Tsuchiya
Post line report(s):	NA
Post base location:	Building 59, Highfield Campus

Job purpose: **Research:** Building research skills, experience, and networks, with appropriate guidance, support and supervision. Work is typically focused on a personal programme of research or contributing to wider programmes of research.

Leadership, Management and Engagement: Planning own work and contributing effectively to leadership, management and engagement activities, with appropriate guidance, support and supervision.

Key accountabilities and indicative time allocation:

1. 60%

Research Contribution:

- Develop and progress a personal programme of research and/or contribute as part of a team to a wider programme of research.
- Develop rigorous and original research contributions that lead to the discovery of new knowledge, insight and/or understanding.
- Regularly produce and/or contribute to research outputs, establishing visibility and credibility among subject-relevant research communities, within and beyond the University.
- Contribute to income proposals.
- Collaborate and network productively with colleagues in own and other departments, disciplines and/or organisations. Engage with a range of public groups, partners or organisations, as appropriate.

- Develop knowledge and understanding of research methodologies (e.g., testing, analysis, interpretation, critical evaluation); select and apply these effectively.
- Contribute to the effective co-creation, sharing of and engagement with research and research findings by a range of audiences (e.g., academic peers, practitioners, policymakers, publics), using a range of methods (e.g., peer-reviewed publications, conferences, public engagement, outreach, media releases).
- Ensure that research outputs are findable, accessible, interoperable and reproducible (FAIR) and, wherever possible, open access.
- Take opportunities to ensure research activities benefit educational practice.
- Contribute to the supervision of postgraduate students and/or research assistants.

2.

20%

Leadership, Management and Engagement Contribution:

Building on the Leadership, Management and Engagement contributions inherent in other Level 4 activities:

- Plan and prioritise own work effectively.
- Undertake defined tasks and contribute effectively to team, department or School-level management, engagement, administration or project work.
- Contribute to short-term and medium-term planning.
- Develop an understanding of School, Faculty and University strategies and objectives.
- Contribute to the wider work of the Faculty and University through effective participation in working groups and committees (e.g., Equality, Diversity and Inclusion committees and self-assessment teams, Health and Safety committees, Research Ethics committees etc.).
- Actively contribute to, and support, Equality, Diversity and Inclusion initiatives within your role, ensuring that EDI principles are integrated into daily tasks and interactions.
- Advise and assist colleagues and students.
- Support and help ensure the health and wellbeing of colleagues.
- Mentor colleagues and support their development.
- Effectively engage in probation, appraisal, career development and continuing professional development activities.
- Effectively act as hiring manager, or member of a recruitment panel, throughout the recruitment process. Ensure recruitment aligns with strategic plans, promote diversity and inclusion, and ensure compliance with employment law. Implement best practice to enhance the candidate experience and support successful candidates through onboarding and induction.
- Help prepare for and/or participate in visit days, open days and public engagement activities
- Use discretion and judgement to select from or adapt existing processes and procedures to achieve outcomes.

3.

5%

Education Contribution:

- Building experience and competence in scholarly educational practice, with appropriate guidance, support and supervision. Work is typically focused on delivery of teaching and learning activities.

4.

5%

Knowledge Exchange and Enterprise Contribution:

- Building specialist knowledge and experience, with appropriate guidance, support and supervision. Work is typically focused on contributing to the design, development and delivery of knowledge exchange and/or enterprise activities and outputs.

5.

5%

To allocate 10 days a year (pro rata if part-time) to undertake training and continuing professional development (CPD), develop research identity and leadership skills in line with the Researcher Development Concordat.

6.

5%

Any other duties as allocated by the line manager following consultation with the post holder.

Internal and external relationships:

Departmental management and University senior management

Other members of the department/University staff

External customers

Relevant suppliers and external contacts

Special requirements:

To be available to participate in fieldwork as required by the specified research project.

Person Specification – Skills and Competencies

All essential and desirable criteria outlined in this Person Specification will be assessed through a combination of recruitment application and CV, and where applicable numerical or written assessment.

Knowledge, Experience and Qualifications

Essential

- Significant hands-on experience in quantum photonics or silicon photonics.
- Extensive and authoritative expertise in quantum photonics characterisation with the ability to design and lead advanced measurement strategies.
- Substantial and authoritative practical knowledge and experience in MEMS/NEMS/photonic, including device design, fabrication, characterisation, electronic design, packaging, modelling and underlying physics, supported by a detailed understanding.
- PhD or equivalent professional qualifications and experience in Electronics, Photonics, Physics, Quantum Photonics, MEMS/NEMS or a closely related field (awarded or near completion)
- Experience in collaborative research and working within multidisciplinary teams.
- Strong and demonstrably effective oral and written communication skills.
- Experience in writing scientific manuscripts and/or technical reports, patents.
- The required level of knowledge and understanding will normally have been gained through some or all of the following:
 - Considerable work experience
 - Vocational training
 - Formal qualification(s) equivalent to Level 8 of the [Regulated Qualifications Framework](#) e.g. PhD in relevant subject area or Level 8 award, certificate, diploma.

Desirable

- Research experience in photonic quantum measurement or quantum photonic circuits.
- Familiarity with modelling or simulation of device behaviour (analytical or numerical).
- PhD in Electronics, Photonics, Physics, Quantum Photonics, MEMS/NEMS.
- Extensive and authoritative expertise in quantum photonics device design and fabrication.
- Demonstrated commitment to maintaining professional knowledge and awareness through continuing personal and professional development.
- Understanding of the Concordats relevance to research.

Teamwork and Communication

Essential

- Delegates and/or collaborates effectively, understanding the strengths and weaknesses of colleagues.
- Works proactively with colleagues and other stakeholders, within and beyond the University, to achieve outcomes.
- Communicates effectively to develop understanding and achieve cooperation.
- Provides clear advice, guidance and recommendations on novel or complex concepts and issues.

Planning, Organisation and Resource Management

Essential

- Plans and progresses education, research and/or knowledge exchange and enterprise activities within broad guidelines and established University policies and procedures.
 - Formulates development plans to meet current skill requirements.
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Problem Solving and Initiative

Essential

- Develops detailed understanding of long-standing and/or complex problems and applies accumulated knowledge and experience to understand and/or resolve them.
 - Demonstrates an awareness of principles and trends within a specialist field and awareness of how this affects education, research and/or knowledge exchange and enterprise activities in the University.
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Job Hazard Assessment

For any hazards identified below a health clearance will be undertaken by our occupational health provider and form part of recruitment checks. Further ongoing clearance may be required for some roles, including for existing members of staff.

Does the risk assessment identify the need for ongoing health surveillance for this role?

Physical Environment

Working outside	Not applicable
Exposure to noise levels >80dbA	Not applicable
Working with dust or fumes	Not applicable
Working with skin irritants/sensitisers	Not applicable
Working with chemicals (industrial or cleaning)	Not applicable
Working in a confined space	Occasionally <30% Time
Working at height	Not applicable
Working with sewage	Not applicable
Contact with cytotoxins	Not applicable
Exposure Prone Procedure (EPP) work	Not applicable
Direct patient care or patient contact / Contact with clinical specimens or pathology work	Not applicable
Ionising radiation	Not applicable

Psychological and Social Environment

Working shifts	Not applicable
Working nights	Not applicable
Lone working	Not applicable
Working with children	Not applicable
Exposure to persons with challenging behaviour	Not applicable

Equipment, Tools and Machines

Working with vibrating machinery or tools	Not applicable
Driving duties	Not applicable
Driving LGV, PCVs	Not applicable
Driving forklift trucks	Not applicable
Food handling	Not applicable
Contact with latex	Not applicable

Physical Abilities

Prolonged repetitive movements or actions	Not applicable
Moving or handling heavy loads	Not applicable

Behaviours

Our [Inclusion and Respectful Behaviour Policy](#) describes the expectations of everyone who is a part of our community.

Our **Southampton Behaviours** (below) outline the responsibilities we each have in working collaboratively to achieve our University strategy.

Personal Leadership

- I take personal responsibility for my own actions and an active approach towards my development.
- I reflect on my own behaviour, actively seek feedback and adapt my behaviour accordingly.
- I demonstrate pride, passion and enthusiasm for our University community.
- I demonstrate respect and build trust with an open and honest approach.

Working Together

- I work collaboratively and build productive relationships across our University and beyond.
- I actively listen to others and communicate clearly and appropriately with everyone.
- I take an inclusive approach, value the differences that people bring and encourage others to contribute and flourish.
- I proactively work through challenge and conflict, considering others' views to achieve positive and productive outcomes.

Developing Others

- I help to create an environment that engages and motivates others.
- I take time to support and enable people to be the best they can be.
- I recognise and value others' achievements, give praise and celebrate their success.
- I deliver balanced feedback to enable others to improve their contribution.

Delivering Quality

- I identify opportunities and take action to make improvements.
- I plan and prioritise efficiently and effectively, taking account of people, processes and resources.
- I am accountable for tackling issues, making difficult decisions and seeing them through to their conclusion.
- I encourage creativity and innovation in others, to deliver workable solutions.

Driving Sustainability

- I consider the impact on people before taking decisions or actions that may affect them.
- I embrace, enable and embed change effectively.
- I regularly take account of external and internal factors, assessing the need for change, and gaining support to move forward.
- I take time to understand our University strategy and communicate this to others.