

Job Description for Research Fellow (110445)

Job Title	Research Fellow
Department	Physics
Grade	6

<p>Job purpose (a brief summary of the role)</p>	<p>Undertake research in order to support the work of the department and develop and enhance its reputation, both internally and externally.</p> <p>Work with project members in the successful execution of the project.</p> <p>Your research goals will be related to developing and integrating terahertz technology with robotics for applying THz imaging and spectroscopy techniques to detection of skin cancer and other skin conditions as part of the £10M EPSRC funded project, Terabotics.</p> <p>Particular focus will be on developing and integrating novel THz image approaches with a medical grade robot, and speeding up and improving the accuracy of terahertz data acquisition and analysis.</p>
<p>Duties and responsibilities</p>	<p>Research and Scholarship</p> <ul style="list-style-type: none"> • Carry out research relating to the development of robotic control of THz probes for in vivo imaging of patients. <ul style="list-style-type: none"> • Acquire and analyse time domain spectroscopy data to extract sample properties and characterise materials. • Design or use analytical tools to simulate and/or model terahertz light. • Align optics and set up novel high speed THz imaging approaches. • Develop algorithms for accurate extraction of parameters from THz data. • Write up research work for publication in refereed journals. • Communicate (orally and in writing) research results, e.g. for conferences. • Continually update own knowledge and understanding in research field. • Assist in the supervision of student projects and the development of student research skills. • May contribute to preparing proposals and applications to external bodies, e.g. for funding to support a developing research agenda. <p>Administration and Other Activities</p> <ul style="list-style-type: none"> • Ensure compliance with health and safety in all aspects of work. • Work within budget constraints.

	The duties and responsibilities outlined are not intended to be an exhaustive list but rather to provide guidance on the main aspects of the post. The post-holder will be required to be flexible in his or her duties.
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Person Specification

The Person Specification focuses on the essential and desirable knowledge, skills, experience and qualifications required to undertake the role effectively. This is measured by (a) Application Form, (b) Test/Exercise, (c) Interview, (d) Presentation.

Essential Criterion No.	Essential Criterion Description	Measured by
E1	Hold, or be about to attain, a PhD or equivalent in a relevant scientific discipline (e.g. Physics, Mechanical Engineering, Biomedical Engineering, Computer Science, Electronic Engineering, Robotics or related disciplines).	A & C
E2	Have experience with terahertz time domain spectroscopy equipment including optical alignment, control software and data analysis.	A & C
E3	Proven track-record in terahertz technology, eg THz modulation, THz waveguides, THz polarisers, THz antennas, together with a proactive, enthusiastic approach to research.	A & C
E4	Proven ability in research and evidence of quality and timely research output (e.g. publications).	A & C
E5	A developing research profile with the ability to publish and/or produce high quality research output.	A & C
E6	Programming experience (e.g. LabView, matlab, C++, or Python).	A & C
E7	Ability or potential to contribute to the development of funding proposals in order to generate external funding to support research projects.	A & C
E8	Ability to initiate, plan, implement and deliver programmes of research work to defined deadlines.	A & C
E9	Ability to work effectively both independently and as part of a research team.	A & C
E10	Excellent interpersonal and communication skills and ability to guide PhD students and help manage the smooth running of the labs.	A & C
E11	An understanding of equal opportunity issues as they may impact on areas of research content.	A & C

Desirable Criterion No.	Desirable Criterion Description	Measured by
D1	Experience with lasers or other systems requiring optical alignment.	A & C
D2	Experience in analysing spectroscopy or imaging data.	A & C
D3	Experience in compressed sensing.	A & C
D4	Experience in automation and control of other spectroscopy or imaging equipment.	A & C