UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Terahertz Spectroscopy and Imaging,

Faculty of Engineering & Physical Sciences



Salary: Grade 7 (£34,304 - £40,927 p.a.) Due to funding restrictions an appointment will not be made above £38,587 p.a.

Reference: EPSEE1053

Closing date: Tuesday 09 November 2021

Fixed term for 2 years

We will consider job share and flexible working arrangements

Research Fellow in Terahertz Spectroscopy and Imaging School of Electronic and Electrical Engineering

Are you an ambitious researcher looking for your next challenge? Do you have an established background in terahertz imaging?

We seek a post-doctoral Research Fellow to join a new large, collaborative, £8M EPSRC-funded project “Terabotics”, focussing on the development of new terahertz sensing and imaging systems to enable applications in surgical robotics including colonoscopy.

The successful candidate will develop time-domain techniques for terahertz (THz) imaging, including the build and use of THz time domain endoscopes, ultimately to be used for detection of cancerous tissue in a medical robotics environment.

You will join the world-leading terahertz and robotics groups at the University of Leeds, with state-of-the-art experimental facilities, and will collaborate with other members of the consortium including in the Universities of Warwick and Exeter.

You will have a strong background in the development of and/or use of terahertz (THz) spectroscopy or imaging systems, applying this to develop novel methods for THz endoscopy. You will make use of our proprietary THz photoconductive on-chip sensors and use a new asynchronous optical laser (ASOPS) system for their measurement. You will have excellent interpersonal skills, a proactive approach to problem solving, and be comfortable interacting day-to-day with academics of all career stages across several institutions. The imaging / endoscopy system development will be conducted in collaboration with Professor Pietro Valdastri at the University of Leeds and Professor Emma Macpherson at the University of Warwick, as well as others in the consortium.

What does the role entail?

As a Research Fellow, your main duties will include:

- To develop techniques for time domain terahertz spectroscopy applied to endoscopy in a surgical environment;



- To aid the design, build and testing of fast terahertz time-domain endoscopes, working alongside other members of the Robotics and Terahertz groups at Leeds, as well as with our wider consortium;
- To write publications for internationally recognised journals and conferences in the field, and, as appropriate, to contribute to the preparation of grant proposals;
- To contribute to joint discussions with the wider research group and collaborators;
- To ensure good day-to-day progress of work, and accurate records and notebooks;
- To interact with, and provide assistance to, other staff in the research group, and be involved in setting the direction of the research project;
- To report progress on your work regularly, both in group and individual meetings, and at grant consortium meetings, and by timely completion of regular written progress reports;
- To assist in the development of student research skills, including assisting in PhD and MSc research supervision, as well as undergraduate projects;
- To help ensure equipment used in the laboratory is properly maintained, liaising with service technicians and technical support teams, as necessary;
- To manage your own research and administrative activities, developing your own research objectives and proposals, with guidance if required;
- To continually update your knowledge and understanding in the field, applying this knowledge to your research;
- To ensure satisfactory compliance in your work with respect to health and safety and other appropriate procedures and processes.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow, you will have:

- A first degree and PhD (or be close to completion) in Electronic Engineering, Physics, or a closely allied discipline;
- A proven track record of peer-reviewed publications in high impact journals;
- Experience of assisting PhD students with their research;






- Good time management and planning skills, with the ability to meet tight deadlines and to work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills;
- A proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development;
- Experience in the use of terahertz time-domain spectroscopy techniques.

You may also have:

- Experience in building terahertz time-domain spectroscopy systems;
- Experience in or knowledge of the use of THz spectroscopy for medical imaging;
- Excellent general knowledge of terahertz technology and terahertz imaging techniques;
- Experience in or knowledge of asynchronous optical sampling techniques;
- Experience of the use of optical, high frequency, or hyperspectral imaging techniques for imaging biological tissue;
- An ability to develop industrial relationships and seek future funding.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

Contact information

To explore the post further or for any queries you may have, please contact:

Professor John Cunningham
Email: J.E.Cunningham@Leeds.ac.uk

Additional information

Faculty and School Information



Further information is available on the research and teaching activities of the Faculty of Engineering & Physical Sciences, and the School of Electronic and Electircal Engineering.

A diverse workforce
The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN Bronze or Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.

Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

Candidates with disabilities
Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

Criminal record information

Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.

