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THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF SCIENCE & ENGINEERING

SCHOOL OF ELECTRICAL & ELECTRONIC ENGINEERING

MICROELECTRONICS AND NANOS

VACANCY REF: S&E-11437

Salary: Grade 6 £31,604 to £38,833 per annum

Hours: Full Time

Duration: Fixed term until 31st January 2021

Location: Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews: Name: Dr. Iain F Crowe

Email: iain.crowe@manchester.ac.uk

BACKGROUND

This position is critical in supporting a recent EPSRC-GCRF award to develop 'on-chip' Optical Coherence Tomography (OCT) based imaging for biomedical applications. The successful candidate will perform world class research into advanced silicon photonic materials and devices, taking a lead role in the simulation/modelling, design and characterisation of silicon/silicon nitride waveguide based interferometer devices. They will be responsible for providing design specifications, based on simulated device performance to enable off- and onsite fabrication using e-beam/UV lithography. They will perform experiments using both existing facilities as well as leading the development of new experimental set-ups for both free-space and fiber-coupled delivery (collection) of near-IR light to (from) the fabricated silicon/silicon nitride devices in order to recover sub-surface image information from broadband interferograms from representative organic/inorganic targets. They will collaborate and interact with other members of the team on issues related to experimentation, data analysis and reporting. They will also interact regularly with key national and international academic and clinical/industrial collaborators, providing feedback and disseminating results on a day-to-day basis. They will assist in the preparation of scientific publications and technical reports in order to disseminate the outcomes to the academic and clinical/industrial communities. This will include presentation at national and international conferences and assisting other members of the team to do the same. They will be expected to assist postgraduate and undergraduate project students in



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connection with their research and maintain and service laboratory research equipment as required.

Overall Purpose of the Job:

Key Responsibilities, Accountabilities or Duties:

- Adhering to all relevant health and safety procedures.
- Maintaining accurate and comprehensive records of research data.
- Training students and others in skills appropriate to the project.
- Making and delivering presentations on the research project as directed.
- Preparation of regular oral and written reports.
- Project management & contribution to day-to-day laboratory management.
- Regular surveys of scientific literature relevant to the research area.
- Preparation of research papers for publication.
- Presentations at national and international conferences/meetings.
- Post holders are required to familiarise themselves with the University's Equality and Diversity policies and to actively support these wherever possible.

PERSON SPECIFICATION

Essential Knowledge, Skills and Experience:

The successful applicant will:

- Have, or be about to obtain a PhD in Physics or Electrical/Electronic Engineering. (or equivalent)
- Have good organisational skills.
- Be self-motivated and able to work independently.
- Have good scientific communication skills, both oral and written, including presentation skills.
- Be able to write and prepare reports/presentations/journal articles.
- Have the ability to contribute to patent submissions and not to disclose results to other persons, except members of the research consortium, that are relevant to the possible future intellectual property of that consortium.
- Have a good background understanding of solid state physics and operating principles of semiconductor optoelectronic devices.
- Experience in performing waveguide based optical transmission/reflection measurements.

Desirable Knowledge, Skills and Experience:

- Experience in optical coherence tomography imaging techniques
- Experience in using specialist software simulation packages such as RSOFT/COMSOL



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- Experience in general optical spectroscopy techniques such as Raman scattering and photoluminescence.
- Experience with standard simulation packages such as MATLAB/Mathmatica/MathCAD