DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Further Particulars:

Research Associate in Device Measurement and Fabrication (EPSRC Future Compound Semiconductor Manufacturing Hub)

Job Title: Research Associate – Device Measurement and Fabrication

Department: Electronic and Electrical Engineering

Reports to Principal Investigator of UCL EPSRC project: "**Future Compound Semiconductor Manufacturing Hub**"

Grade: Research Associate Grade 7 (29-30),
£34,056 - £34,984 per annum, Inclusive of London Allowance of £2980 per annum.

Start Date: The position is available from 1th June 2017 or as soon as possible thereafter for a period of 24 months for the first instance. Further funding to support the most may be available.

A PhD (or working towards a PhD) in a relevant subject is required. If the successful candidate has not completed their PhD yet, appointment will be made at Research Assistant level at Grade 6B point 24-26, on the UCL salary scale (£29,809 - £31,432 per annum including London Allowance of £2980 pa), with payment at Grade 7 being backdated to the date of final submission of the PhD thesis including corrections

Project Outline

Our vision is to establish the UK as the primary global research and manufacturing hub for Compound Semiconductor (CS) Technologies. We aim to combine and connect the UK research excellence in compound semiconductors, with the very best translational facilities and the new Compound Semiconductor Catapult to support the UK CS industry and UK industry users of CS. The hub and spoke universities will be linked to other centres of excellence throughout the UK. The combined activity will provide a path from enabling fundamental research through wafer, device and integrated chip manufacturing research into product prototyping, reliability testing and system qualification at the Compound Semiconductor Catapult.

The EPSRC Manufacturing Hub in Compound Semiconductors will address the need to integrate CS and Silicon (Si) manufacturing, apply the manufacturing advances made in one type of CS across the different families of CSs and combine these different CSs for optimum functionality.

The key outcomes will be 1) To radically boost the uptake and application of CS technology by applying the manufacturing approaches of Silicon to CS, 2) To exploit the highly advantageous electronic, magnetic, optical and power handling properties of CS while utilising the cost and scaling advantage of Silicon technology where best suited, and 3) To generate novel integrated functionality such as sensing, data processing and communication.

This hub is funded by EPSRC and involves a collaboration between University College London (UCL), Cardiff University, Sheffield University, and the University of Manchester. One of the tasks of UCL is to carry out the device measurement and processing of high performance III-V quantum-dot light sources grown on silicon substrates. This Research Associate post will be part of Photonics Group, and work under the supervision of Professor Huiyun Liu and Professor Alwyn Seeds with materials grown within the state-of–the-art Molecular Beam Epitaxy (MBE) Facility in the Department of Electronic and Electrical Engineering and will use the advanced device measurement facilities in the Department of Electronic and Electrical Engineering and the advanced device-processing facilities in the London Centre for Nanotechnology.

Research Associate in device fabrication

Duties and Responsibilities

The Research Associate in III-V/Si device measurement and fabrication will be responsible for carrying out device measurement in the Department of Electronic and Electrical Engineering and fabrication in the clean room of the London Centre for nanotechnology (LCN) working with members of UCL academic staff, other undergraduate and postgraduate student support, and technical staff in LCN. The following is indicative of the duties and responsibilities associated with this post:

- To carry out advanced device measurement and characterization of high-quality quantum-dot light sources on silicon substrate in the Department of Electronic and Electrical Engineering.
- To develop methods to measure and characterise semiconductor optical amplifiers grown on silicon substrate.
- To lead on the development of the high-quality III-V quantum-dot devices on silicon substrates in LCN.
- To develop new process technologies and carrying out independent research in related fields.
- Regularly communicate and work in close collaboration with the MBE grower and the other consortium members at Cardiff University, Sheffield University, and the University of Manchester.
- Provide supervision, advice and guidance to undergraduate project and PhD students.
- Travel to consortium partner institutions to perform joint experiments and assist any visiting researchers from partner institutions.
- Contribute to the preparation of reports and the presentation of results at progress meetings.
- Publish research in leading journals and present it at national and international conferences.
- Contribute to the overall activities of the research team and department as required.
- Ensure that equipment is safe and maintained in working order and to maintain an awareness of UCl Fire and Health and Safety regulations.
- Actively follow UCL policies including Equal Opportunities policies

As duties and responsibilities change, the job description will be reviewed and amended in consultation with the postholder, and will carry out any other duties as are within the scope, spirit and purpose of the job as requested by the line manager or Head of Department/Division.

The post is to be held in the UCL Department of Electronic and Electrical Engineering working in close collaboration with LCN. The commercial aspects of the project will be carried out in collaboration with UCL Business (UCLB) and potential Industrial partners.

Qualification/Skills Required

- A first degree in engineering or a physical sciences subject. (essential).
- PhD in relevant area of semiconductor technology (or about to submit) (essential).
- Proven capability in the measurement and characterization of advanced semiconductor devices (essential)
- Proven capability in the fabrication of advanced electronic and opto-electronic components (essential).
- Ability to analyse and write up data in the form of journal papers and reports (essential).
- Ability to organise and plan work effectively to meet deadlines (essential).
- Capability to develop an independent research profile within the period of the grant (desirable).
- Experience with laboratory construction and management (desirable).

Personal

- Excellent interpersonal and communication skills (essential).
- Ability to present technical information effectively to a range of audiences (essential).
- Commitment to high quality research (essential).
- Ability to work collaboratively and as part of a team (essential).
- Commitment to UCL's policies e.g. equal opportunity, health and safety (essential).

HOW TO APPLY

All applications should be submitted via UCL Online recruitment system at the following link:

www.ucl.ac.uk/hr/jobs and search for reference 1641478

In additional to the application please upload a copy of your CV and a list of publications.

If you experience any problems please contact Vicky Coombes at v.coombes@ucl.ac.uk quoting Job reference 1641478

Interested applicants are encouraged to make informal enquiries to Professor Huiyun Liu, huiyun.liu@ucl.ac.uk, 020 7679 3983, or Professor Alwyn Seeds, a.seeds@ucl.ac.uk, 020 7679 7928.

UCL Taking Action for Equality

About UCL and the Departments of Electronic and Electrical Engineering

University College London (UCL) was founded in 1826 as the third university in England, after Oxford and Cambridge. UCL is however the first university in England to admit students of any race, class or religion, and the first to welcome women on equal terms with men. UCL is now the largest comprehensive university in London with more than 4,000 academic and research staff in 72 departments. The main campus of UCL is located in central London, just a few minutes walking distance from British Museum, West-End and Thames River.

The Department of Electronic and Electrical Engineering at UCL was established by Professor Sir Ambrose Fleming in 1885 and has a very strong research culture, state-of-the-art research equipment and facilities, and a very rich history of many fundamental research achievements in electronic and electrical engineering. The Department currently hosts international renowned research groups in Communications and Information Systems; Photonics; Optical Networks; Microwaves, Radar and Optics; Electronic Materials, Devices and Nanotechnology. For more information about the department and our research achievements, please visit the website http://www.ee.ucl.ac.uk

Further information regarding UCL may be found at:
www.ucl.ac.uk/

Information about the departments may be found at:
www.ee.ucl.ac.uk