

Research Associate in Advanced Photodetector Devices and Systems: Cardiff, UK

As part of a major investment programme in compound semiconductor science and technology, Cardiff University seeks a talented, motivated postdoctoral researcher with expertise in advanced photodetectors to join the Institute for Compound Semiconductors (ICS) and its related sensor initiative, which is funded by the Sêr Cymru Chair grant, in Cardiff, Wales, UK.

The Research Programme

The envisioned research targets advanced photodetector topics including avalanche photodiodes (APDs) and single photon detectors, (SPADs) enabled by nanostructures and plasmonics. Our applications scope includes quantum technology, remote sensing, medical imaging and communication with local, international and industrial collaborations.

Several related positions in integration, optoelectronics and photonics are open in parallel to support the ICS and the larger Compound Semiconductor Cluster forming in Wales.

The ICS and Sêr Cymru research group form part of > £300m investment in new research and innovation centres, and its potential is already recognised by the Welsh and UK governments, who have invested over £29m towards its creation. The ICS will be a unique facility in Europe, equipped with epitaxy, state-of-the art fabrication and device characterisation facilities. Stimulated by demand for creative and professional prototyping service, the ICS provides an environment to grow academic research and industrial projects.

Qualifications and Experience

Candidates will have a PhD in Engineering, Physics or closely-related subject focusing on compound semiconductor (III-V). Experience in compound semiconductor (III-V) device modelling, fabrication and characterisation is essential. Individuals with knowledge in advanced photodetector topics specifically avalanche photodiodes (APDs), single photon (SPAD), high speed performance and/or mid to long-wave infrared (MWIR to LWIR). You will have a strong research record demonstrated through publications in high quality academic journals; experience participating in research proposals and research/industry-based groups with proven ability to network effectively with academics and outside academia.

Please submit with your completed application, your full CV and a statement of research interests and career goals (2 pages max).

For informal enquiries please email Professor Diana Huffaker on HuffakerDL@cardiff.ac.uk.

For more information about working at Cardiff University contact Glesni Lloyd on LloydGW@cardiff.ac.uk

This full-time post is fixed term for 2 years.

Salary: £32,004- £38,183 per annum (Grade 6)

Main Function of post:

To conduct research in advanced compound semiconductor photodetector devices and systems. To contribute to the overall research performance of the School, the Institute for Compound Semiconductors (ICS) and the University, carrying out research leading to the publishing of work in high-quality journals, conference presentations and industrial collaborations. To pursue excellence in research and to inspire others to do the same.

Main duties and responsibilities:

To conduct research within the area of state-of-art optoelectronic devices, with a specialty in advanced III-V photodetectors. To contribute to the overall research performance of the School and the University by the production of measurable outputs, including bidding for funding, publishing in academic journals and conferences;

To develop research objectives and proposals for own or joint research including assistance with research funding proposals;

To develop and nurture industrial collaborations in support of innovation and technology transfer.

To build and create networks both internally and externally to the university, to influence decisions, explore future research requirements, and share research ideas for the benefit of research projects;

To disseminate research findings through publishing in leading international academic journals and high-impact conferences

To review and synthesise existing research literature within the field;

To assist in research team training, mentoring and day-to-day supervision including PhD, postgraduate research students;

To undertake administrative tasks associated with the research project, including the planning and organisation of the project and the implementation of procedures required to ensure accurate and timely reporting and to assist in research team training, mentoring and day-to-day supervision including PhD, postgraduate research students;

Other:

To engage effectively with industrial, commercial and public sector organisations, professional institutions, other academic institutions etc., regionally and nationally to raise awareness of the School's profile, to cultivate strategically valuable alliances, and to pursue opportunities for collaboration across a range of activities – these activities are expected to contribute to the School and the enhancement of its regional and national profile;

To undergo personal and professional development that is appropriate to and which will enhance performance;

To participate in School administration and activities to promote the School and its work to the wider University and the outside world;

To carry out any other duties not included above, but consistent with the role.

Personal Specification :

Essential Criteria:

Qualifications and Education

1. A PhD in physics or engineering with specialty in advanced III-V photodetectors in III-As, or Sb materials.

Knowledge, Skills and Experience

2. An established expertise and proven portfolio of research and / or relevant industrial experience associated with photodetectors including: Design and device modelling, fabrication, characterisation (photoluminescence, current-voltage, capacitance-voltage, spectral response).
3. Evidence of knowledge in advanced photodetector topics including avalanche photodiodes (APDs), single photon detectors, (SPADs), superlattices, (T2SL), mid-long wave infrared (MWIR, LWIR), nanostructures and plasmonics.
4. Proven ability and record of high-quality publications in international journals, conference presentations and technical society participation.
5. Demonstrated ability to contribute to successful competitive research funding proposals.

Communication and Team Working

6. Proven ability in effective and persuasive communication
7. Ability to supervise the work of others to focus team efforts and motivate individuals
8. Demonstrated ability to develop networks and links with researchers in other institutes to enhance research

Other

9. Proven ability to demonstrate creativity, innovation and team-working within work.

Desirable Criteria:

1. Evidence of successful collaborations with industry.
2. Evidence of intellectual property (IPR) generation.
3. Evidence of administrative responsibilities and general academic duties within an academic department.
4. Evidence of a commitment to public outreach.
5. Relevant professional qualification.
6. Proven ability to work without close supervision.
7. Proven ability to adapt to the changing requirements of the Higher Education community.
8. Evidence of ability to participate in and develop both internal and external networks and utilise them to enhance the research activities of the School.
9. A willingness to take responsibility for academically related administration.