

Research Officer/ Senior Research Officer

University of Essex - School of Computer Science and Electronic Engineering

Location: Colchester
Salary: £29,799 to £38,832 for
Research Officer £32,548 -
£38,832 per annum for
Senior Research Officer
Hours: Full Time
Contract Type: Fixed-Term/Contract

Placed on: 23rd March 2018
Closes: 11th April 2018
Job Ref: REQ01218

School of Computer Science and Electronic Engineering

Applications are invited for a fixed-term post of up to 8 months (ending 31 December 2018), for either a Research Officer or Senior Research Officer to work on an EPSRC-funded collaborative project between the Universities of Essex and Bristol. The SPINSPACE (Spin-enabled all-optical switching and signal processing) project aims to develop novel sources for spatially-encoded next-generation telecoms, quantum communications and computational systems. The main focus at Essex is on vertical-cavity surface-emitting lasers (VCSELs) a field where the Essex group already has an international reputation.

Duties of the Role

The research involves experimental and theoretical analysis of stability and instability of lasing in spatial arrays of VCSELs. A combination of experimental techniques involving photopumping, electrical excitation and optical injection will be used to reveal the richness of the temporal lasing behavior including periodicity and chaos. The theory will be based on the underlying physics of vertical cavity semiconductor lasers and will take account of all essential optical and electronic phenomena.

This project offers a unique opportunity to work at the forefront of optoelectronics research and to acquire skills in advanced optical experimentation and/or modelling advanced devices, as well as knowledge of the broader fields of nonlinear dynamics and spintronics with applications in communications. While the post holder will be based at the University of Essex, the project requires considerable interaction between partners.

At Research Officer level the candidate will work under the direction of a Principal Investigator or supervisor to produce internal research reports. At Senior Research Officer level the candidate is expected to undertake or manage practical elements of research.

Skills and qualifications required

At Research Officer and Senior Research Officer level, the successful candidate will hold a PhD in optoelectronics, photonics or a related area or equivalent professional experience or practice or be close to completion of PhD. The project would be ideally suited to candidates with experience of advanced characterization of optoelectronic devices and/or modelling semiconductor lasers, particularly VCSELs.

At Research Officer level the candidate is expected to have a good understanding of the principles of semiconductor physics and devices particularly lasers. At Senior Research level the candidate is expected to have a detailed understanding.

At Research Officer level the candidate is expected to have an appreciation of theory of guidance and coupling effects in optical waveguides and at Senior Research Officer level the candidate is expected to have in depth knowledge.