POSTDOCTORAL RESEARCH ASSOCIATE / RESEARCH FELLOW IN NONLINEAR OPTICAL PHONONICS
SCHOOL OF PHYSICS
REFERENCE NO. 1839/0914

The Nonlinear Optical Phonics (NOP) group at the University of Sydney currently has a vacancy for a postdoctoral position working in the development of novel chip-based Brillouin sources, including Brillouin frequency combs (BFC). The NOP group is funded through an Australian Research Council (ARC) Laureate Fellowship awarded to Professor Benjamin Eggleton and is closely linked with the ARC Centre of Excellence CUDOS (Centre for Ultrahigh bandwidth Devices for Optical Systems). The NOP group engages in theoretical and experimental research to explore novel effects associated with photon-phonon interactions in highly-nonlinear nanoscale circuits and optomechanical structures.

The BFC project aims to create novel, on-chip frequency comb sources integrated with complex microwave photonic signal processors to achieve state-of-the-art characteristics such as gigahertz frequencies, excellent stability and ultra-low noise performance. Such sources are critical for arbitrary waveform generation in telecommunications, high-purity microwave synthesizers and optical clocks in metrology.

This is an opportunity to join a well-established group that has an outstanding track record in the field, with the first demonstration of on-chip stimulated Brillouin scattering, slow and fast light, on-chip Brillouin lasers, and integrated RF-photonic processors. You will participate in this project seeking to build on these results and explore the physics in the comb formation and the comb phase-locking and new ways to control them.

You will be responsible for:
- developing a research program related to nonlinear optical phononics or related areas
- preparing and present scientific results in papers and conferences
- co-supervising undergraduate and graduate research students
- assisting in recruitment of research students
- assisting towards attracting new funding.

You must have:
- a PhD in Physics, Electrical Engineering or a related discipline
- published research as sole author or in collaboration
- extensive experience in experimental optics, nonlinear optics and laser physics
- knowledge and understanding of the theory and formalism of nonlinear optics, in particular Brillouin scattering and multi-wave nonlinear interactions
- knowledge in microwave photonic signal processing
- experience in presenting seminars at research institutions and conferences.
- experience in supervision of students at undergraduate level.

Desirable will be experience in some of the following: frequency comb sources, guided and nonlinear optics, integrated optics and photonics, stimulated Brillouin scattering and in numerical simulation of nonlinear optical pulse propagation. To be considered at Research Fellow Level B, you will be required to have a substantive level of postdoctoral experience, strong evidence of independent research and experience in the supervision of research students.

The position is full-time fixed term for two years subject to the completion of a satisfactory probation period for new appointees.

Remuneration package: up to $110K p.a. including Level A-B base salary range $82K-$93K, leave loading and up to 17% superannuation. Visa sponsorship and some assistance towards travelling cost may be available if required. Level of appointment will be commensurate with experience and qualifications.

All applications must be submitted via the University of Sydney careers website. Visit sydney.edu.au/recruitment and search by the reference number for more information and to apply.

For specific information, please contact Professor Ben Eggleton on ben.eggleton@sydney.edu.au General enquiries can be directed to Fabrice Noël on +61 2 8627 1218 or fabrice.noel@sydney.edu.au

CLOSING DATE: 9 November 2014 (11.30pm Sydney time)

The University is an equal opportunity employer committed to equity, diversity and social inclusion. Applications from equity target groups and women are encouraged. The University of Sydney has also established a scheme to increase the number of Aboriginal and Torres Strait Islander staff employed across the institution. Applications from people of Aboriginal and Torres Strait Islander descent are encouraged. The University reserves the right not to proceed with any appointment.