

Two Postdoc Positions: Integration of Electrically Driven Plasmonic Components in High Speed Electronics

Two postdoctoral fellow positions are available immediately in the Nijhuis group at the National University of Singapore, NUS) to develop plasmonic-electronic transducers for applications in integrated high speed electronics for next generation technologies (Beyond Moore applications such as 3D Integrated Circuits). These transducers interconvert electrical signals directly into plasmonic signals and are based on highly efficient tunnelling junctions. During the first phase of the program, we achieved 10% efficiency. The project is funded by the National Research Foundation for 5 years and is a collaborative effort with several industry partners, the Centre of Advanced 2D Materials (<https://graphene.nus.edu.sg/>), and NUS Nanoscience & Nanotechnology Initiative (www.nusnni.nus.edu.sg/), and the Institute of High Performance Computing at A*STAR (<https://www.a-star.edu.sg/ihpc>).

Position 1: This project aims to develop electrically driven plasmonic interconnects based on tunnel junctions (which are the plasmon sources and detectors) integrated with plasmonic waveguides. These plasmonic interconnects will be optimized for ultra-high speed data transport in plasmonic electronic circuitry.

Position 2: Signal restoration is important in any type of high end electronic circuitry. This project aims to develop the plasmonic equivalent of a signal restorer which are based on a plasmonic-electronic amplifier, and an active tunnel junction for plasmon launching without optical elements.

Candidates should have a strong background in plasmonic waveguiding, quantum plasmonics, modelling, optical characterization, or clean room based micro/nanofabrication. Posts will be offered for the initial period of one or two years with possible extension, subject to review. Competitive salary is negotiable depending on experience. Formal applications (which include CV, cover letter, and the contact details of three references) should be addressed to

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