

SINGA Awards – IHPC Projects

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Research Area/ Theme			
Nanophotonics/Plasmonics			
Proposed Project Title: Novel Photonic Waveguides for Optical Interconnects			
<i>Please provide a short write-up of the proposed project (s)</i>			
<p>Due to a growing need to address the opportunity of faster interconnects and lower power consumption, academia and industry are both devoting huge amount of research efforts to solve this exciting challenge.</p> <p>One of the possible solutions is to adopt a strategy of using photonics for massive data transfer as we can eliminate the conundrum of data throughput bottleneck as well as electromagnetic immunity. The fundamental question lies herein: which waveguide structure will enable the most optimised data transfer, and consequently the determination of the likely device architecture. Consequently, the possibility of making such devices active must also be considered.</p> <p>In order to solve these, this project will need to interrogate the various possible types of photonic structures including, strip, rib, photonic crystal based structures, slot-based designs, and possibly novel structures. At the same time, pertinent issues such as the polarization dependent loss, single-mode operation criteria of small waveguides, bends, splitters, couplers, filters, must be considered. The aim is to optimize these devices based on a device dimension before porting over to system level. Active device consideration in the form of optical modulators will also be investigated.</p>			