FLEET
ARC CENTRE OF EXCELLENCE IN FUTURE LOW-ENERGY ELECTRONICS TECHNOLOGIES

Monash Centre for Atomically Thin Materials

FLEET & MCATM SEMINAR

Quantum emitters in flatland

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Abstract: Engineering solid state quantum systems is amongst grand challenges in engineering quantum information processing systems. While several 3D systems (such as diamond, silicon carbide, zinc oxide) have been thoroughly studied, solid state emitters in two dimensional (2D) materials have not been observed. 2D materials are becoming major players in modern nanophotonics technologies and engineering quantum emitters in these systems is a vital goal.

In this talk, I will discuss the recently discovered single photon emitters in 2D hexagonal boron nitride and present several avenues to engineer these emitters in large exfoliated sheets using ion and electron beam techniques. I will also discuss potential atomistic structures of the defects supported by density functional theory.

About the Speaker: ***A/Prof. Igor Aharonovich*** received his PhD in 2011 from The University of Melbourne where he developed experimental techniques to engineer novel, ultra bright single photon emitters in diamond.

After which, he took a postdoctoral position at Harvard University with Prof Evelyn Hu focusing on the nanofabrication of optical cavities out of diamond, SiC and GaN. He also carried out nanophotonic experiments including coupling of emitters to optical cavities, turning of cavity resonances and low temperature high resolution spectroscopy.

His current research interests are surrounding wide bandgap semiconductors and their implementation in Nanophotonics and Bio-sensing.

DATE: 4 December 2017
TIME: 11:00AM–12:00midday
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