



Igor Aharonovic

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Spectroscopy in Flatland

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Sala Wataghin, Istituto di Fisica, via P. Giuria 1, Torino

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Abstract

Single defects in solids that emit single photons on demand (also known as quantum emitters) are fundamental building blocks for nanophotonics and quantum information science. In this talk I will discuss the recently discovered quantum emitters in two dimensional (2D) hexagonal boron nitride. 2D materials are becoming major players in modern nanophotonics technologies and engineering quantum emitters in these systems is a vital goal. I will present detailed spectroscopic studies to characterize these emitters and means of engineering them using ion and electron beam techniques. I will then highlight promising avenues towards integration of these emitters with on-chip devices for realization of atomically thin integrated nanophotonics platform.

The speaker



Igor Aharonovich is Associated Professor and coordinator of the Nanophotonics Group at the School of Mathematical and Physical Sciences of the University of Technology of Sydney. He received his B.Sc (2005) and M.Sc (2007) in Materials Engineering from the Technion – Israel Institute of Technology. He then moved to Australia and pursued his PhD studies at the University of Melbourne; during his PhD, he developed experimental techniques to engineer novel, ultra bright single photon emitters in diamond. Subsequently, he was a postdoctoral fellow at the School of Engineering and Applied Sciences of Harvard University; in this period, his research was focused on the nanofabrication of photonic devices out of wide bandgap materials including diamond and gallium nitride. His current research at the University of Technology of Sydney is supported by a DECRA Fellowship of the Australian Research Council, and is focused on spectroscopy of single defects in wide bandgap semiconductors for nanophotonics and sensing applications.