HL 12: Invited Talk: Mark Holmes

Time: Monday 16:45–17:15 Location: EW 201

Invited Talk HL 12.1 Mon 16:45 EW 201

III-Nitride Quantum Dots as Single Photon Emitters — •Mark Holmes[1,2], Kang Gao[1], Florian Le Roux[1], Kihyun Choi[2], Satoshi Kako[1,2], Munetaka Arita[1,2], and Yasuhiko Arakawa[1,2] — [1]Institute of Industrial Science, The University of Tokyo — [2]Institute for Nano Quantum Information Electronics, The University of Tokyo

III-nitride quantum dots are becoming increasingly interesting and important for the generation of single photons of light. They provide strong quantum confinement to enable operation at elevated temperatures, and also a wide range of band gaps over which the emission energy can be tuned (in theory from the UV all the way to the IR). In this presentation I will discuss our recent work at The University of Tokyo on realizing single photon emission from III-nitride quantum dots. In particular, I will discuss our efforts to realize high temperature operation from GaN/AlGaN nanowire based structures, and also high purity emission from interface fluctuation GaN/AlGaN quantum dots. Recently, with the aim of generating indistinguishable photons, we have been making measurements on the spectral diffusion time scales in such structures, which I will discuss in detail.