

# Light Emission From Site-Selectively Tethered PbS(x) Nanocrystals on SOI-based Photonic Crystal Microcavities

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Colloidal PbS and PbSe nanocrystals emitting at 1.5 microns are selectively bound to the antinode region of an L3 SOI-based photonic crystal microcavity using a novel processing scheme. The process will be described, and cavity-enhanced emission spectra 10X the background value are achieved. The saturation behaviour and temperature dependence of the emission from surface-bound PbS(x) nanocrystals on SOI are contrasted with the emission properties of thick films of the colloidal nanoparticles. This work is aimed at the development of nonclassical light sources in silicon photonic circuits.