

Abstract Submitted  
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**Nanocrystal-based Optoelectronic Devices**<sup>1</sup> KENNETH EVANS, Applied Physics Ph.D. Program, Rice University, JOSEPH HERZOG, DANIEL WARD, DOUGLAS NATELSON, Department of Physics & Astronomy, Rice University — Optoelectronic devices capable of detecting and emitting light on a scale well below its wavelength could have a profound impact on basic and applied experimental research in light-based electronics, on-demand photon generation, and for studying poorly understood quantum phenomena such as blinking and spectral wandering. We present a fabrication procedure for ultrasmall, nanocrystal optoelectronic devices based on self-assembled layers of quantum dots in plasmonically-active gold nanogaps. We provide preliminary experimental results which examine the possibility for surfaced-enhanced fluorescence, subwavelength detection and emission of light as well as plasmon-based optical trapping in these systems.

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