

Abstract Submitted  
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**Elastic vs Inelastic Light Scattering from a Quantum Dot** K. KONTHASINGHE, J. WALKER, M. PEIRIS, University of South Florida, C.K. SHIH, University of Texas at Austin, Y. YU, M. LI, J. HE, L. WANG, H. NI, Z. NIU, Chinese Academy of Sciences, A. MULLER, University of South Florida — We spectrally resolve the light scattered by a single InAs semiconductor quantum dot and analyze in detail the contribution from elastic and inelastic scattering processes. The measurements are well described by the theoretical expression given by Mollow. High resolution measurements reveal that the elastically scattered light is highly phase coherent with the laser. Thus a quantum dot elastically scattering a pulsed laser may serve as a triggered single photon source. In this regime, spectral diffusion and other broadening mechanisms are not a bottleneck for obtaining transform-limited photons.

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