

Abstract Submitted  
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**Spectroscopic Characterization of 1-D Excitons in Semiconductor Quantum Wires** RICHARD A. LOOMIS, Washington University in St. Louis — Single-molecule microscopy studies have been performed in the frequency- and time-domains on semiconductor quantum wires (QWs) and quantum belts (QBs) to investigate the 1-D nature of excitons prepared in them. Photoluminescence (PL) intensity blinking that spans the entire lengths of QWs has been observed with continuous illumination. This blinking, which spans QWs as long as 20 microns, suggests that delocalized excitons can be formed when trap sites are filled. Multiple laser experiments have been performed to further probe the delocalization of excitons within QWs and QBs. Emission from multiple exciton states has been detected from single CdSe QWs at room temperature when using high excitation power densities. The measured PL lifetimes from the different exciton states indicate a systematic decrease with increasing population.

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