

Abstract Submitted
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Photoconductivity Spectroscopy of Colloidal Lead Selenide Nanowires RION GRAHAM, KA LEUNG, DONG YU, UC Davis — PbSe, with a large Bohr exciton radius of 46 nm, is ideally suited to study strong quantum confinement effects. Photoconductivity spectroscopy of single PbSe nanowire devices can remove the inhomogeneous broadening of ensemble measurements and allows for extraction of fine electronic structures in two dimensionally confined semiconductors. We have grown PbSe nanowires via a colloidal, oriented attachment mechanism, with diameters down to 6nm. Using a tunable wavelength laser, we have measured photoconductivity of single nanowire field effect transistors (FETs) as a function of excitation energy, temperature, and nanowire diameters.

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