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Photoreflectance measurements of single wurtzite InP nanowires
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— We have carried out photoreflectance measurements from a single semiconductor nanowire for the first time to our knowledge. We show that photoreflectance is an easy, quick and nondestructive technique which could be used to study the electronic band structure of a single semiconductor nanowire at both room and low temperatures. We have used photoreflectance to study electronic band structure of single wurtzite InP nanowires at room and low temperatures. Nanowires were grown by MOCVD using 100nm Au-nanoparticle catalysts. Derivative like features in the photoreflectance spectrum around the fundamental gaps allow us to extract energies of 1.50eV, 1.53eV and 1.70eV for A, B and C excitons of wurtzite an InP nanowire at low temperature. These values are compared to values obtained by photoluminescence-excitation and photocurrent measurements. Supported by the NSF (#0701703, #0806700 and #0806572) and the Australian Research Council.

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