

Abstract Submitted
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Electroluminescence from individual CdS/CdSe nanowires contacted by poly(3-hexylthiophene) KRISTIN MAHER, LIAN OUYANG, DONG YU, YONG-JOO DOH, CHUN YU, Department of Chemistry, Harvard University, HONGKUN PARK, Department of Chemistry and Department of Physics, Harvard University — Nanocrystal-polymer composites have been shown to exhibit interesting optoelectronic properties. However, only bulk properties of these materials have been measured, and the single nanocrystal-polymer interface is poorly understood. We report the fabrication and characterization of light-emitting transistors incorporating individual CdS/CdSe heterostructure nanowires and a thin film of poly(3-hexylthiophene) (P3HT). The nanowire is contacted at one end by a metal electrode and at the other by a thin film of P3HT, a *p*-type conducting polymer. The devices show rectifying current-voltage behavior and light emission can be observed at forward bias. The peak wavelength and the full width at half-maximum of the electroluminescence were 1.68 eV and 0.08 eV, respectively. The mechanism for light emission will be discussed.

Kristin Maher
Department of Chemistry, Harvard University

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