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Assembly of Hybrid Solar Cells: Polythiophene Wrapped CdSe Nanorods SIRINYA CHANTARAK, TODD EMRICK, THOMAS P. RUSSELL, Univ of Mass - Amherst — We prepared cadmium selenide nanorods (CdSe NRs) covered with three types of polythiophenes: poly(3-hexylthiol thiophene), poly(3-hexylamine thiophene), and poly(3-hexylphosphonate thiophene) with thiol, amine, and phosphonate functional groups, respectively, to anchor to the nanorods. This led to a thin layer of p-type conducting polymer covering the n-type inorganic nanorods. A vertically-oriented assembly of polythiophene-functionalized CdSe NRs on a conducting substrate was obtained with the use of an applied electric field. Ternary nanocomposites of CdSe-polythiophene-graphene were obtained via π-π stacking. These oriented CdSe NRs-polythiophenes nanocomposites y potential applications in hybrid photovoltaic devices.

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