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**Synthesis of type II core/shell nanowires for photovoltaic application** WEILIE ZHOU, KAI WANG, JIAJUN CHEN, Advanced Materials Research Institute, University of New Orleans, YONG ZHANG, JOHN PERN, YANFA YAN, ANGELO MASCARENHAS, National Energy Renewable Laboratory, NATIONAL ENERGY RENEWABLE LABORATORY COLLABORATION — The core/shell semiconducting nanowires based on II-VI semiconductors, involving with type II band energy alignments, are predicted to be a new kind of nanostructured materials for efficient charge separation for stable and efficient photovoltaic devices. In this talk, we report a successful synthesis of II-VI semiconducting core/shell nanowires by a relatively simple and low-cost approach. The structures and optical properties were characterized by applying a set of comprehensive techniques. A sharp interface and the epitaxial relationship between the core and shell were observed. Two excitonic absorption peaks were clearly found at respective excitonic bandgaps, indicating a good crystallinity of both the core and shell. Compared to the single component nanowires, the PL spectrum of the core/shell nanowires shows a reduction in intensity and a slight blue shift at the band edge emission of the core nanowires, which may partially arise from spatially charge separation between the core and shell. The direct growth of core/shell nanowires represents a major step toward fabricating a low-cost, high efficiency and stable solar cell.

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