

Abstract Submitted
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Co-Assembling P3HT/ZnO as Parallel-Lane Hybrid Nanowires for Photovoltaic Application¹ CHI-AN DAI, YI-HUAN LEE, YANG-HUI CHEN, LEEYIH WANG, National Taiwan University — The fabrication of organic/inorganic hybrid materials based on conducting polymers and inorganic semi-conducting nanoparticles has gathered great attentions recently due to its potential applications in optoelectronics such as solar cells. However, inorganic nanocrystals often suffer from macrophase separation from pi-conjugated polymers following increasing loading concentrations with decreasing interfacial area, leading to reduced efficiency. To counter this problem, we develop a facile in-situ co-assembly method to fabricate highly elongated P3HT nanowires lining along their long fibril-axis with continuous and highly crystalline ZnO nanocrystal pathways. The donor/acceptor (D/A) parallel-lane nanowire hybrid thus formed may act as efficient pathways for charge separation and transport. The optoelectronic property and the solar cell performance of the resulting hybrid will be discussed.

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