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A Facile Approach for P3HT/ZnO hybrid Synthesis for Solar Cell Application[1] CHI-AN DAI, YI-HUAN LEE, YU-PING LEE, YANG-HUI YANG, Department of Chemical Engineering, National Taiwan University, LEEYIH WANG, Center for Condensed Matter Sciences, National Taiwan University — The fabrication of organic/inorganic hybrid materials based on conducting polymers and semiconducting nanoparticles has gathered great attentions recently due to its potential applications in renewable energy such as solar cells. However, problems occur as the two pre-synthesized materials are mixed since the resulting hybrids typically undergo macrophase separation with increasing nanoparticle loadings, leading to reduced charge separation and transport. To this end, a number of methods have been pursued to achieve a favorable dispersion of nanoparticles in hybrid solar cells. In this study, we have developed an in-situ synthesis method followed by a heating treatment to grow highly elongated P3HT/ZnO nanofibrils. The optoelectronic property and the solar cell performance of the resulting hybrid will be discussed.

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Chi-An Dai
Natl Taiwan Univ

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