

반도체 나노로드/고분자 태양전지에 관한연구
A study of the semiconductor nanorod/conjugated polymer solar cells

강윤목†, 김성진, 강민구, 김우영, 김동환
고려대학교 신소재공학과
(yourmook@daum.net)

Organic solar cells provide the possibility an easy and cheap production of large scale device, although devices fabricated using a single layer of polymer have been found to have low conversion efficiencies of incident photons to electrons. Efficient collection of carriers requires that the exciton produced by photo-excitation be separated into free charge carriers, and that these carriers are then transported through the device to the electrodes without recombining with oppositely charged carriers:

In this paper, we study the fabrication and performance of CdS nanorod/MEH-PPV hybrid solar cells. We studied the processes of charge separation and transport in composite materials formed by mixing cadmium sulfide nanorods with the conjugated polymer poly~2-methoxy,5-(2'-ethylhexyloxy)-1,4-p-phenylenevinylene (MEH-PPV). Thin-film photovoltaic devices using the composite materials showed solar power conversion efficiency that was significantly improved over those with pure MEH-PPV devices.