

## Synthesis of ZnO nanocrystals and their application in the quantum dot solar cells

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ZnO nanostructures are promising components in a wide range of devices for future applications in photocatalysis, solar cells, optical devices and biochemical sensing. We perform the quantum-dot solar cells based on ZnO nanoparticles (-np) and ZnO nanorods (-nr). The quantum size effect is manifested by both absorption and photocurrent action spectra. The power conversion efficiency (PEC) of the cells using the ZnO-nr are higher than the cells using the ZnO-np. The effect of ZnO nanorods length (ranging from 1 to 3  $\mu\text{m}$ ) on solar cell efficiency was tested.