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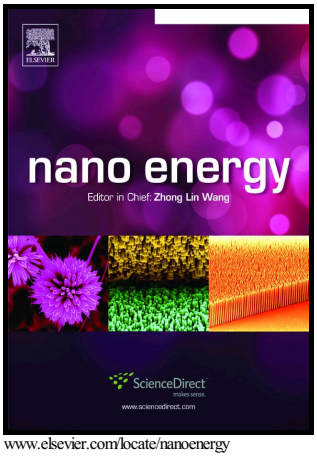


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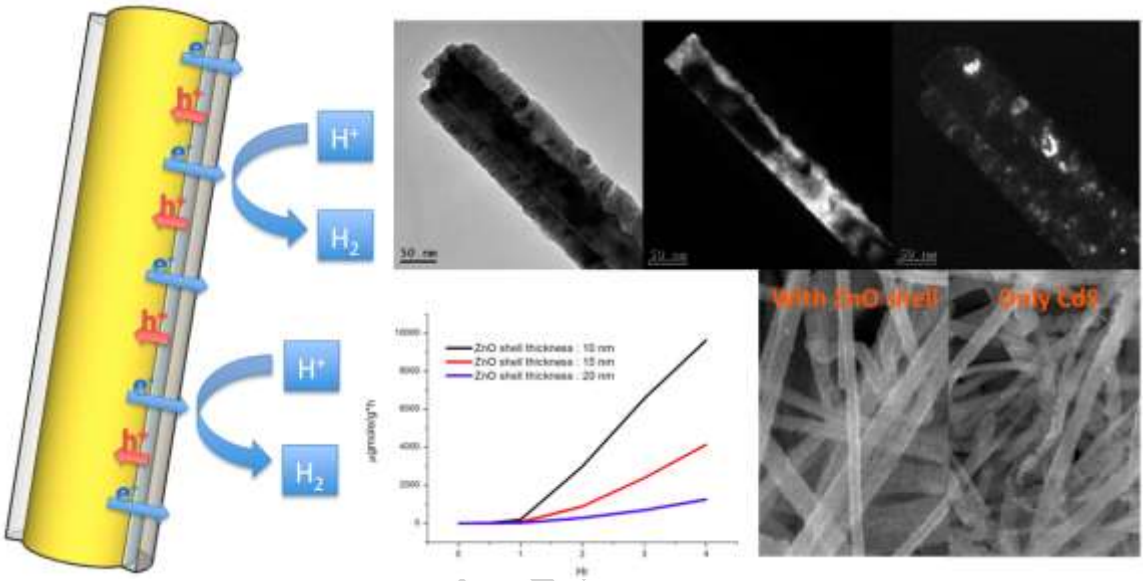


**Abstract**

With the increasing impact of environmental degradation, the renewable energy production has become urgent. Among the various efforts, hydrogen is considered to be the promising fuel for the next generation. In this work, CdS-ZnO core-shell nanowires were synthesized for hydrogen generation. The presence of ZnO shell could not only prevent CdS nanowires from photocorrosion but also facilitate electron-hole separation. Compared to CdS nanowires, CdS-ZnO core-shell nanowires had shown better stability in acid solution and improvement in hydrogen generating activity by more than 2 orders in magnitude. For CdS-ZnO structure with 10-30 nm shell thickness, the hydrogen generating activity was higher for with the thinner ZnO layer due to less possibility of electron-hole recombination and higher absorption of incident light. The results indicate that CdS-ZnO core-shell nanowire is a promising material for hydrogen generation.