

The Facile Synthesis of CdSe Hollow Nanoparticles and Necklace-like Nanowires from CdO Sacrificial Template via Chemical Reaction

김정원¹, 김원배^{1,2,*}

¹광주과학기술원 신소재공학부;

²광주과학기술원 차세대에너지연구소

(wbkim@gist.ac.kr*)

We used a simple solution-based phase transfer approach to fabricate CdSe hollow necklace-like nanowires and nanoparticles from shrunk CdO nanostructures as sacrificial templates. The synthesis of hollow nano-structures requires inconvenient templates or surfactants, which should be removed from synthesized products. However, the sacrificial template method in this study does not need such complicated process because it is completely consumed by chemical reaction. The shrunk CdO nanostructures as sacrificial templates, obtained via thermal Ostwald ripening, were successfully converted into CdSe hollow necklace-like nanowires and nanoparticles through Kirkendall diffusion effect and anion exchange reaction in the NaHSe aqueous solution. [This work was supported by the Mid-career Researcher Program (2013029776) and the Global Frontier R&D Program (0420-20130103) of Center for Multiscale Energy System funded by the National Research Foundation, and the Core Technology Development Program from the Research Institute of Solar and Sustainable Energies (RISE/GIST).]