



The Size-dependent growth direction of ZnSe nanowires

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Abstract

Single crystalline ZnSe nanowires grown by molecular beam epitaxy technique via Aucatalyzed vapor-liquid-solid reaction showed interesting growth phenomena. Au catalysts initially reacted with the substrate to form binary AuGa₂ alloy droplets. The growth direction of ZnSe nanowires was mainly determined by the sizes of AuGa₂ catalysts. The L-S interface structure at the tip of the NW was the most critical factor influencing the NW growth direction. The size-dependent growth direction of ZnSe nanowires was interpreted based on the estimation of the surface and interface energies of ZnSe nuclei.