Supporting Information

Doping dependent crystal structures and optoelectronic properties of n-type CdSe:Ga nanowires

Zhizhong Hu, Xiujuan Zhang,* Chao Xie, Chunyan Wu, Xiaozhen Zhang, Liang Bian,
Yiming Wu, Li Wang, Yuping Zhang, Jiansheng Jie*

Contents

1. XRD patterns of both the undoped and the Ga-doped CdSe NWs p.2
2. Morphologies of the undoped CdSe NWs synthesized at different temperature p.3
3. Device characteristics of the back-gate CdSe:Ga NW FETs p.4
4. Schematic illustration of the top-gate CdSe:Ga NW FETs with high-κ HfO₂ dielectric p.5
Figure 1S. XRD patterns of both the undoped and Ga-doped NWs synthesized at different source evaporation temperature.
**Figure 2S.** (a) SEM image of the undoped CdSe NWs synthesized at 795°C with a ball shape catalyst cap. Inset shows the corresponding low-resolution TEM image. (b) Low-resolution TEM image of the undoped CdSe NW synthesized at 895°C, which has a half-ball shape catalyst cap.
Figure 3S. (a) Schematic illustration of the back-gate nanoFET based on individual CdSe NWs. (b), (c), and (d) show the device characteristics of the back-gate NW FETs fabricated from N1, N2, and N3, respectively.
**Figure 4S.** Schematic illustration of the top-gate nanoFETs based on the individual CdSe:Ga NWs with high-κ HfO₂ dielectric. (a) cross-sectional view. (b) tilted view.