

Supporting Information

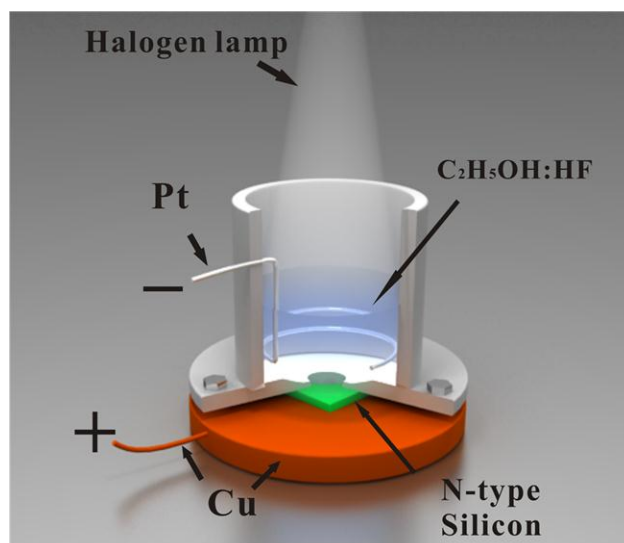


Figure S1. Schematic illustration shows the experimental setup for the fabrication of porous n-Si *via* electrochemical etching.

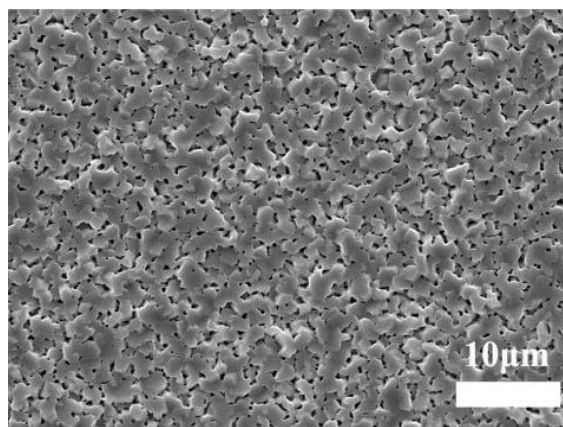


Figure S2. SEM image of the product obtained on smooth Si substrate. The experimental conditions were the same as that for the growth of CdSe NW arrays on porous Si.

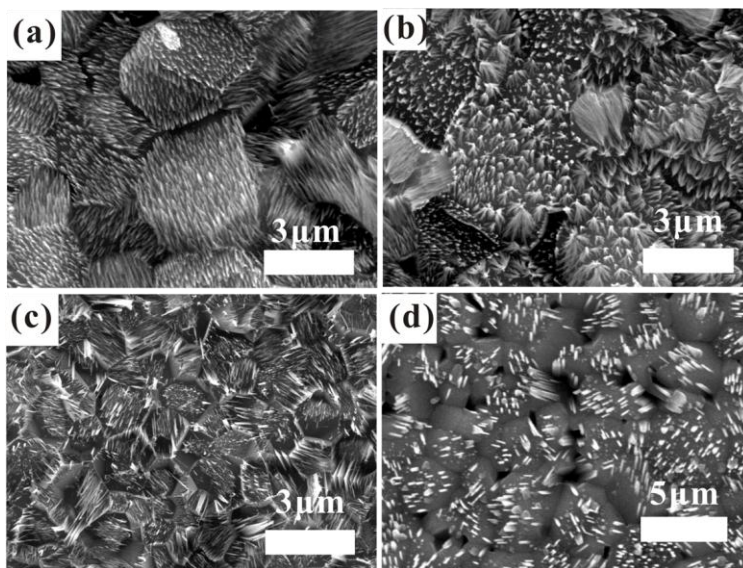


Figure S3. SEM images of the NW arrays obtained under different conditions. Growth temperature and pressure are (a) 950 °C, 120 Torr, (b) 950 °C, 100 Torr, (c) 920 °C, 150 Torr, and (d) 920°C, 100 Torr, respectively. The gas flow ratio and growth time were kept unchanged at 60 sccm and 45 min, respectively, for all the samples. It is seen that the NW density decreases with decreasing the growth temperature/pressure.

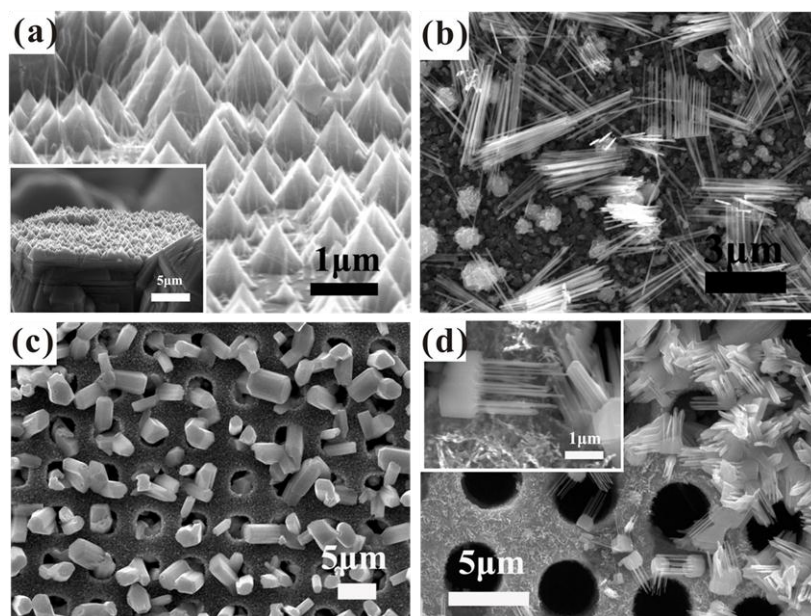


Figure S4. CdSe NW arrays with distinct morphologies and structures obtained under various growth conditions. (a) 930 °C, 60 sccm, 150 Torr, 40 min. After growth, the pressure in the system was kept constant until the temperature decreased to 750 °C. (b) First stage: 930 °C, 60 sccm, 200 Torr, 20 min. Second stage: 930 °C, 60 sccm, 100 Torr, 20 min. (c) 900 °C, 40 sccm, 150 Torr, 20 min. (d) 900 °C, 80 sccm, 100 Torr, 40 min.