

Supporting Information

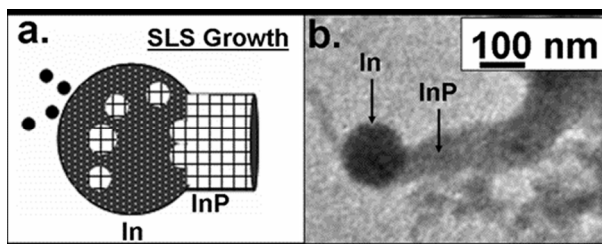


Figure S1. Indium metal droplets (of dark contrast) fused to growing InP nanowires (moderate contrast) could be clearly observed in b. Unreacted solid hydrogen phosphide remained could also be observed as particles with light contrast.

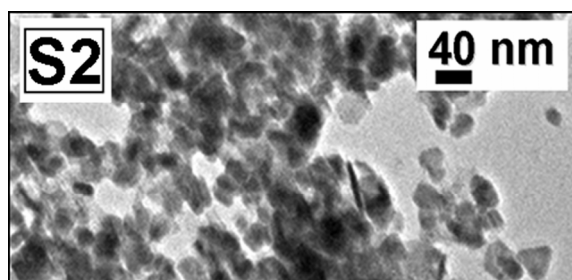


Figure S2: A TEM image of Bi nanoparticles synthesized (without purification) and used in the SLS growth of InP NWs. The TEM sample was prepared under N_2 in a dry box and was exposed to air for less than 2 minutes before being mounted onto a TEM sample holder.

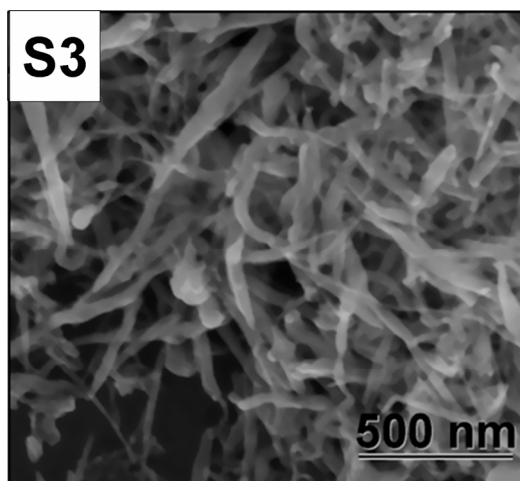


Figure S3. FESEM images In seeded InP NWs with average diameters ranged between 50 to 90 nm. The nanowires assemble was prepared in high concentration specifically into a mat of nanowires before annealing and subsequent photoconduction study.

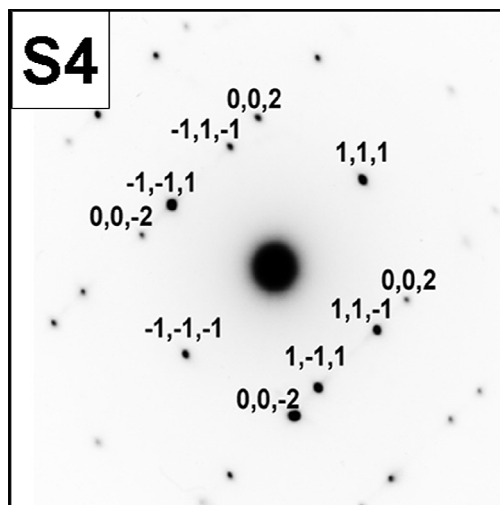


Figure S4. Electron diffraction pattern of an InP NW (shown in Figure 4a) when viewed down $[-110]$ zone axis. The growth direction was characterized to be $[111]$.