Electrically Conductive and Optically Active Porous Silicon Nanowires

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Supplementary Information

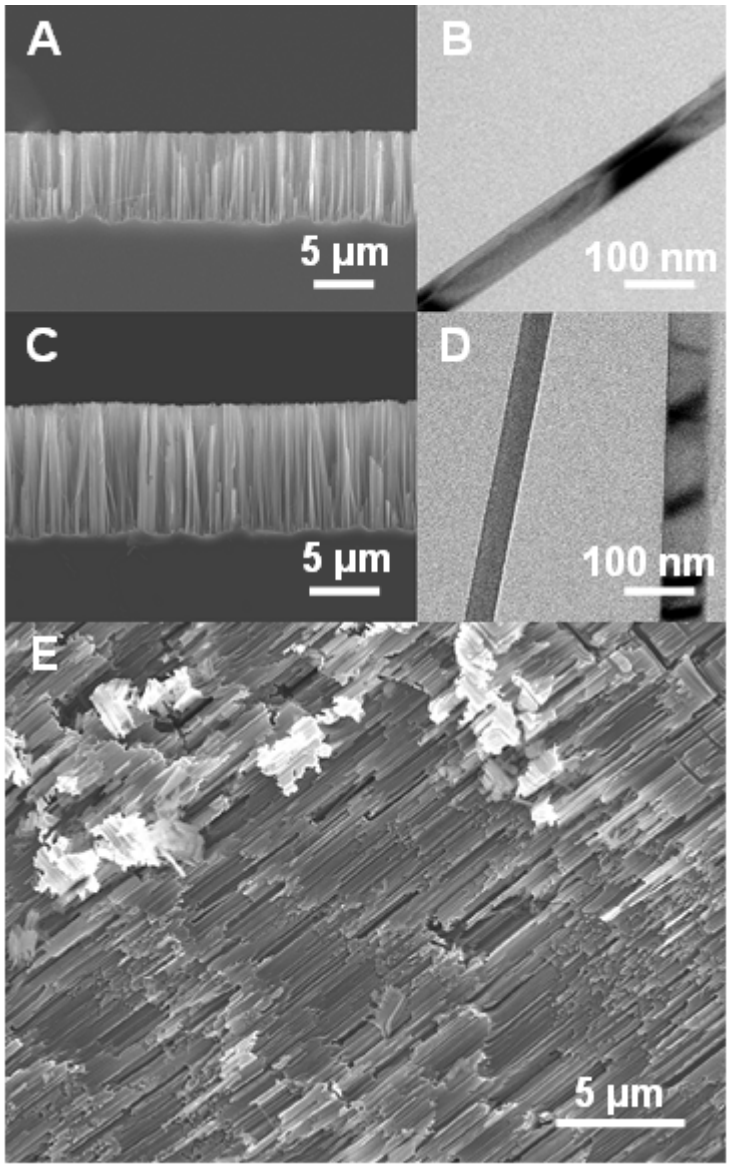

Figure S1. (A) Cross section SEM image of the silicon nanowire array obtained by one-step etching n-Si (100) wafer with 1-5 Ω·cm resistivity in a solution containing 5 M HF and 0.02 M $AgNO_3$ for 2 hours; (B) TEM image of the as-grown silicon nanowire in (A); (C) Cross section SEM image of the silicon nanowire array obtained by one-step etching n-Si (100) wafer with 0.3-0.8 Ω·cm resistivity in a solution containing 5 M HF and 0.02 M $AgNO_3$ for 2 hours; (D) TEM image of the as-grown silicon nanowire in (C); (E) SEM image of n-Si (100) wafer with 0.008-0.02 Ω·cm resistivity after etching in a solution containing 5 M HF and 0.02 M $AgNO_3$ for 2 hours.

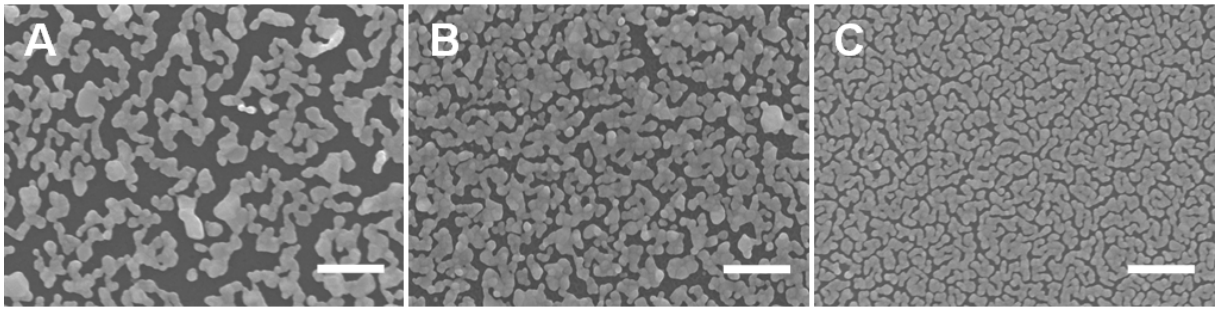

Figure S2. SEM images of as-deposited Ag on silicon pieces with deposition solution of 4.8 M HF and 0.005 M $AgNO_3$ for 1 min. (A) Silicon piece with 1-5 Ω·cm resistivity; (B) Silicon piece with 0.3-0.8 Ω·cm resistivity; and (C) Silicon piece with 0.008-0.02 Ω·cm resistivity. The scale bar is 500 nm. These studies show an increasing number of Ag nanoparticles on surface with increasing doping concentration.