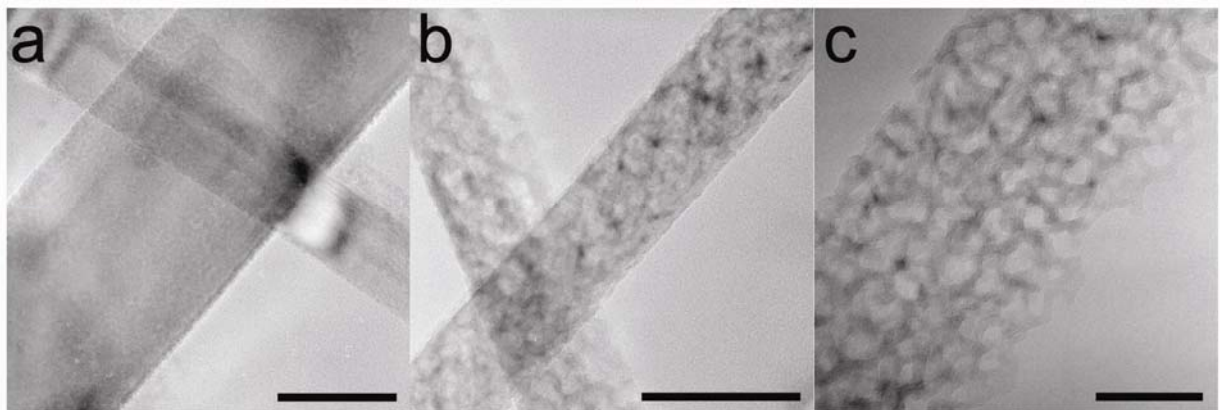


## **Supporting Information**

### **Single crystalline mesoporous silicon nanowires**

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**Figure S1.** TEM micrographs of silicon nanowires etched from 10, 0.01, and  $<0.005 \Omega\cdot\text{cm}$  wafers, respectively. The nanowires surface roughness increases with decreasing wafer resistivity until porous structures form from wafers of  $<0.005 \Omega\cdot\text{cm}$  as discussed in the main text. Scale bars are 100 nm for **a** & **b**, and 50 nm for **c**.



**Figure S2.** XRD patterns for porous Si nanowires collected in powder form. The porous nanowires were synthesized using different  $\text{AgNO}_3$  concentration, 5M HF. The intensity ratios among the peaks are similar to standard Si powder samples. The data exhibited characteristic diffraction peak broadening as a result of nanoscale crystalline silicon domains, which is consistent with TEM observation.

