## **Supplemental Document**

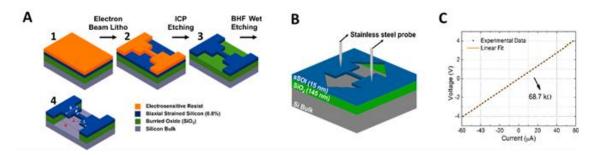


Fig. 1. A) Diagram of the nanofabrication steps. B) 2-probe setup for resistivity characterization as function of the strain and C) Typical current-voltage characteristic.

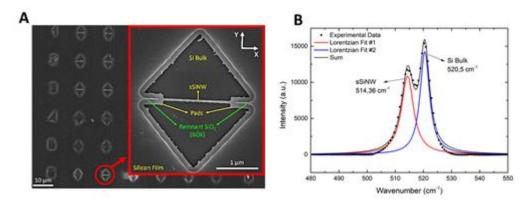


Fig. 2. A) 2.5  $\mu m$ -long, 90 nm-wide sSiNW and B) Raman spectrum of the sSiNW and Si bulk.