

Electronic Supplementary Information

Growth of Silver Nanowires on GaAs Wafers

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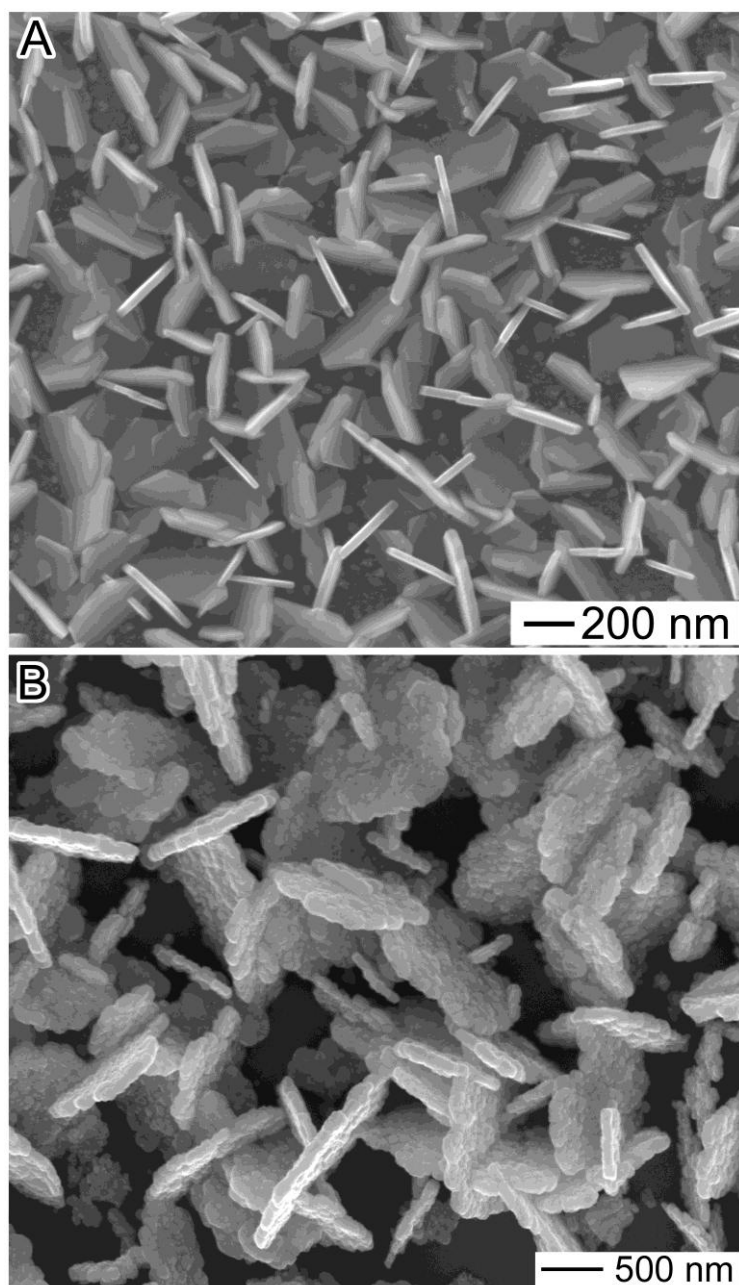


Figure S1. (A) SEM image of the Ag nanoplates on a n-GaAs wafer doped with Si at a concentration of $1.5 \times 10^{18} \text{ cm}^{-3}$ that were obtained through the reaction between the wafer and an aqueous solution of AgNO_3 with a concentration of 1 M for 2 min at room temperature.[Y. Sun, *Chem. Mater.*, 2007, **19**, 5845.] (B) SEM image of the Ag nanoplates on a n-GaAs wafer doped with Si at a concentration of $1 \times 10^{18} \text{ cm}^{-3}$ that were obtained through the reaction between the wafer and an aqueous solution of AgNO_3 with a concentration of 0.1 M for 10 min at room temperature.[Y. Sun and G. P. Wiederrecht, *Small*, 2007, **3**, 1964.]

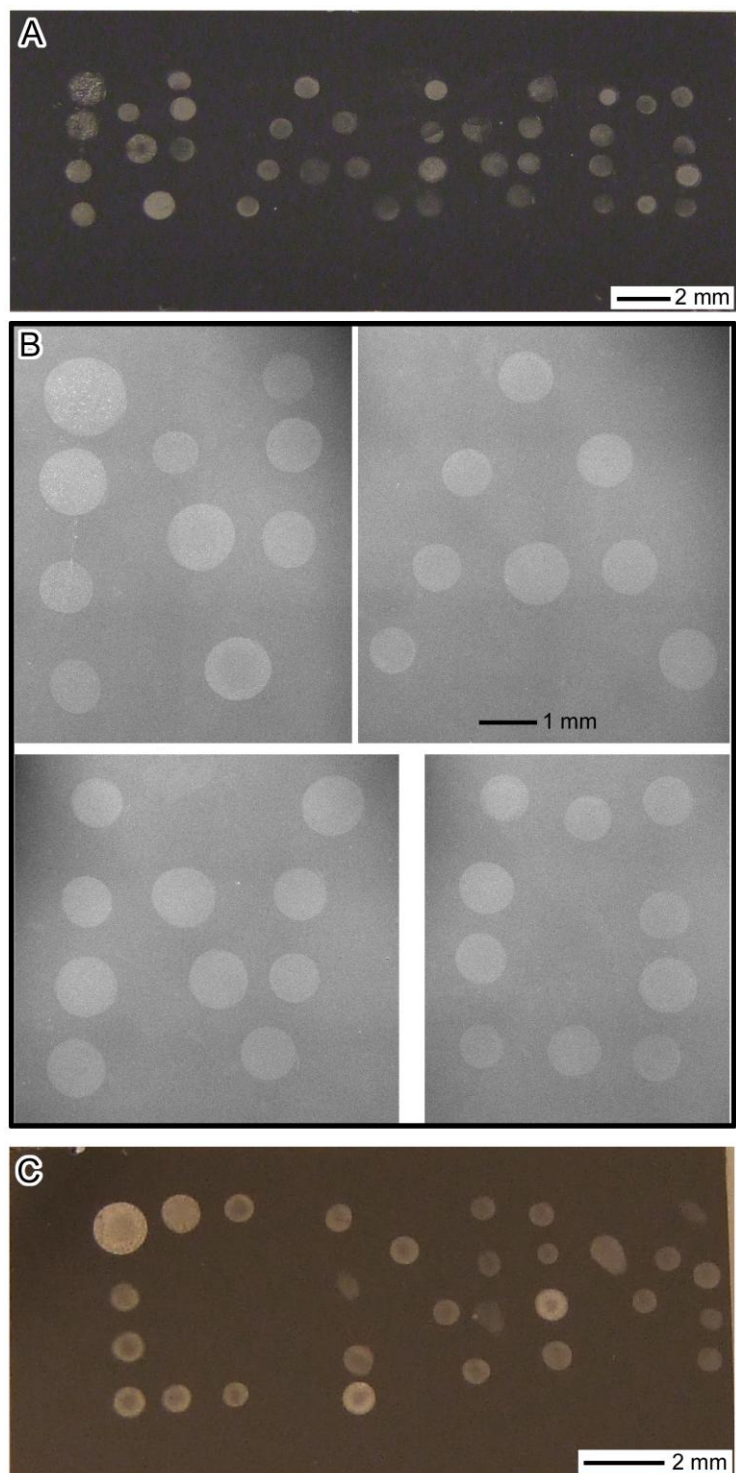


Figure S2. (A) Optical and (B) SEM image of a “NANO” pattern consisting of brightly dotted areas where Ag nanowires (shown in Figure 1) have been grown. (C) Optical image of a pattern of “CNM”.

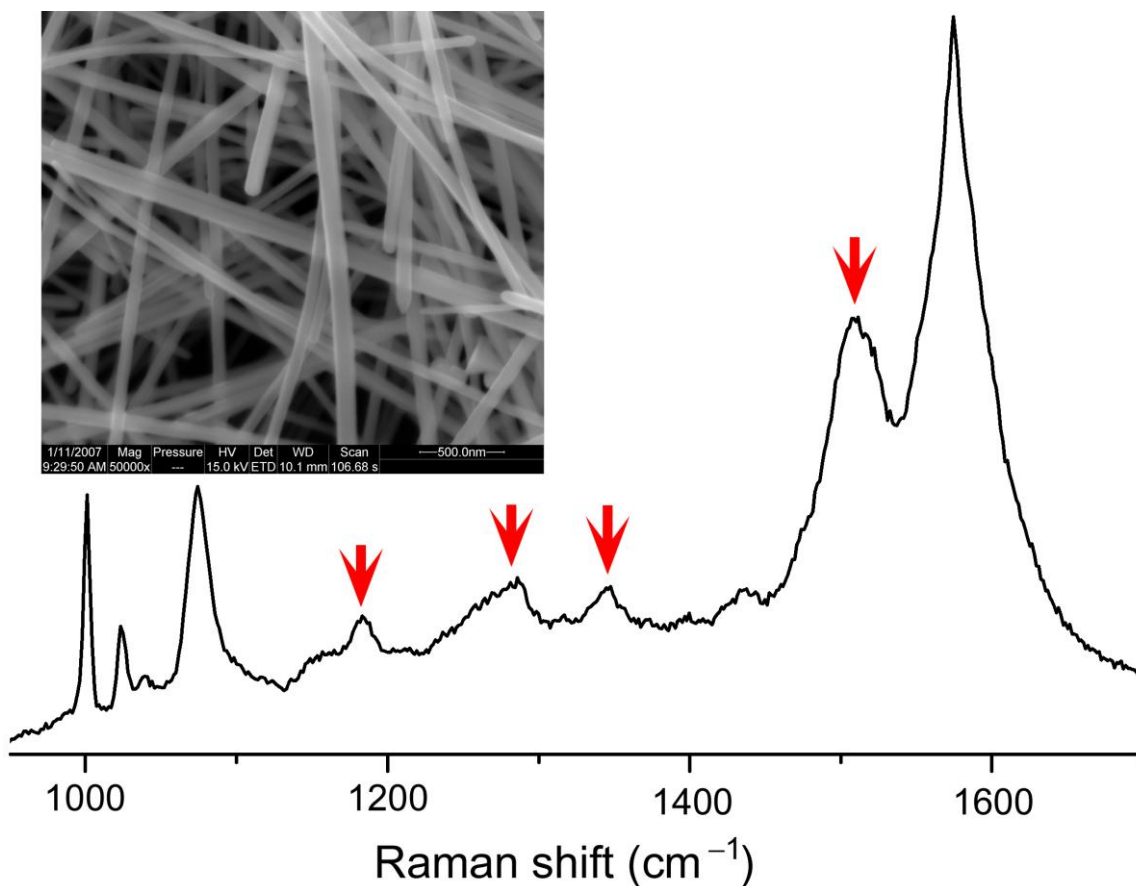


Figure S3. Raman spectrum recorded from a film of Ag nanowires that were synthesized through a polyol process with PVP as surfactant after the nanowire film had been soaked in a 1% ethanolic solution of thiophenol for 22 hrs at room temperature. In addition to the appearance of strong peaks of thiophenol, peaks of PVP (highlighted by red arrows) also appear.

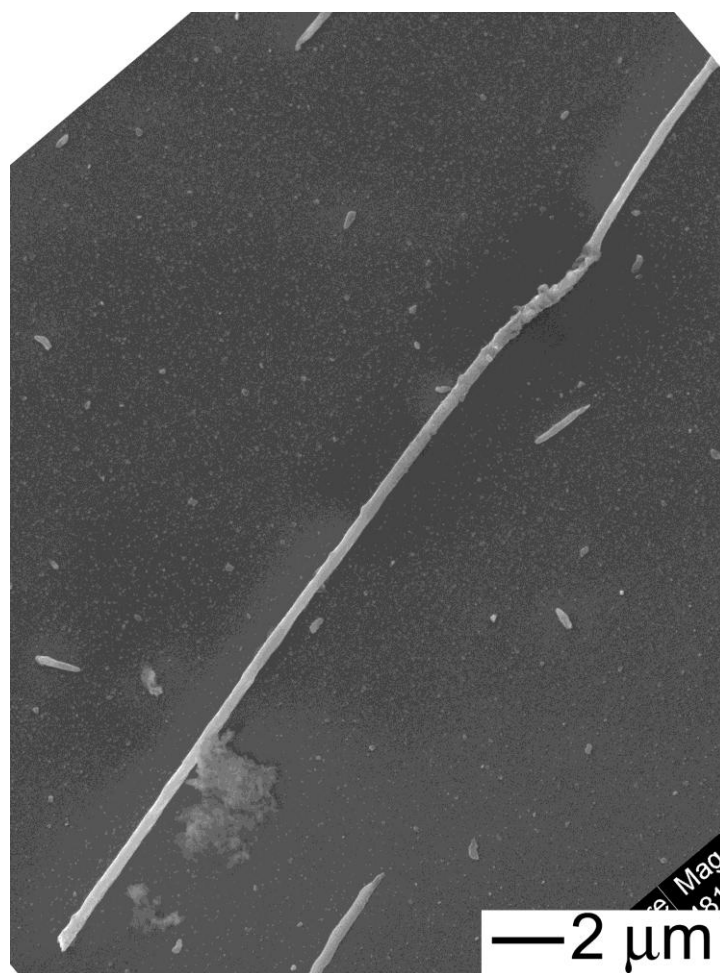


Figure S4. SEM image of the Ag nanowire shown in Figure 8C after it was applied with a breakdown current and the probes were moved.