

Supporting Information

for

Growth and morphological analysis of segmented AuAg alloy nanowires created by pulsed electrodeposition in ion-track etched membranes

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Additional experimental data

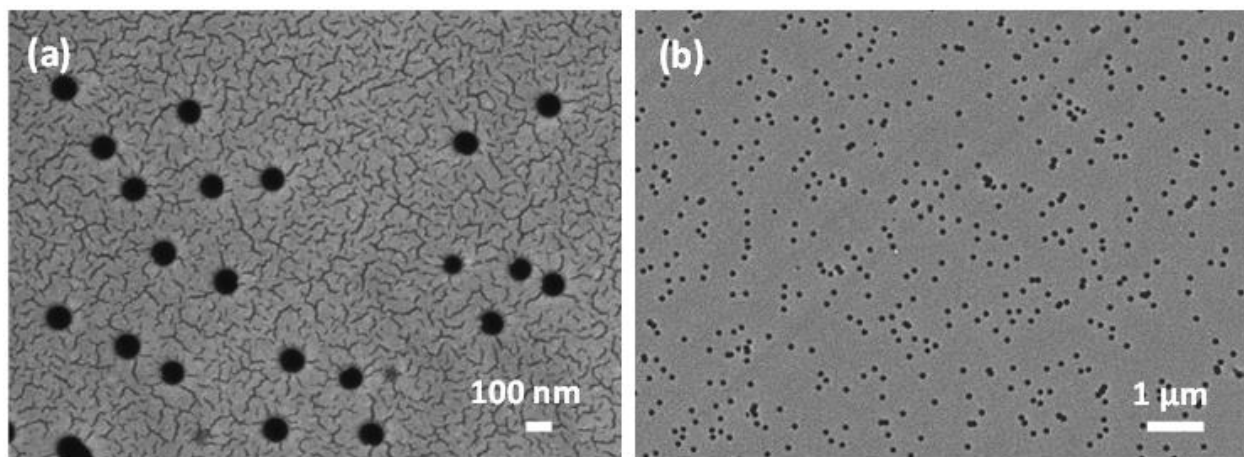


Figure S1: SEM image of a typical ion-track membrane with 10^9 ions/cm² with (a) high and (b) low magnification. The polymer foil is etched for 5 min after the ion irradiation.

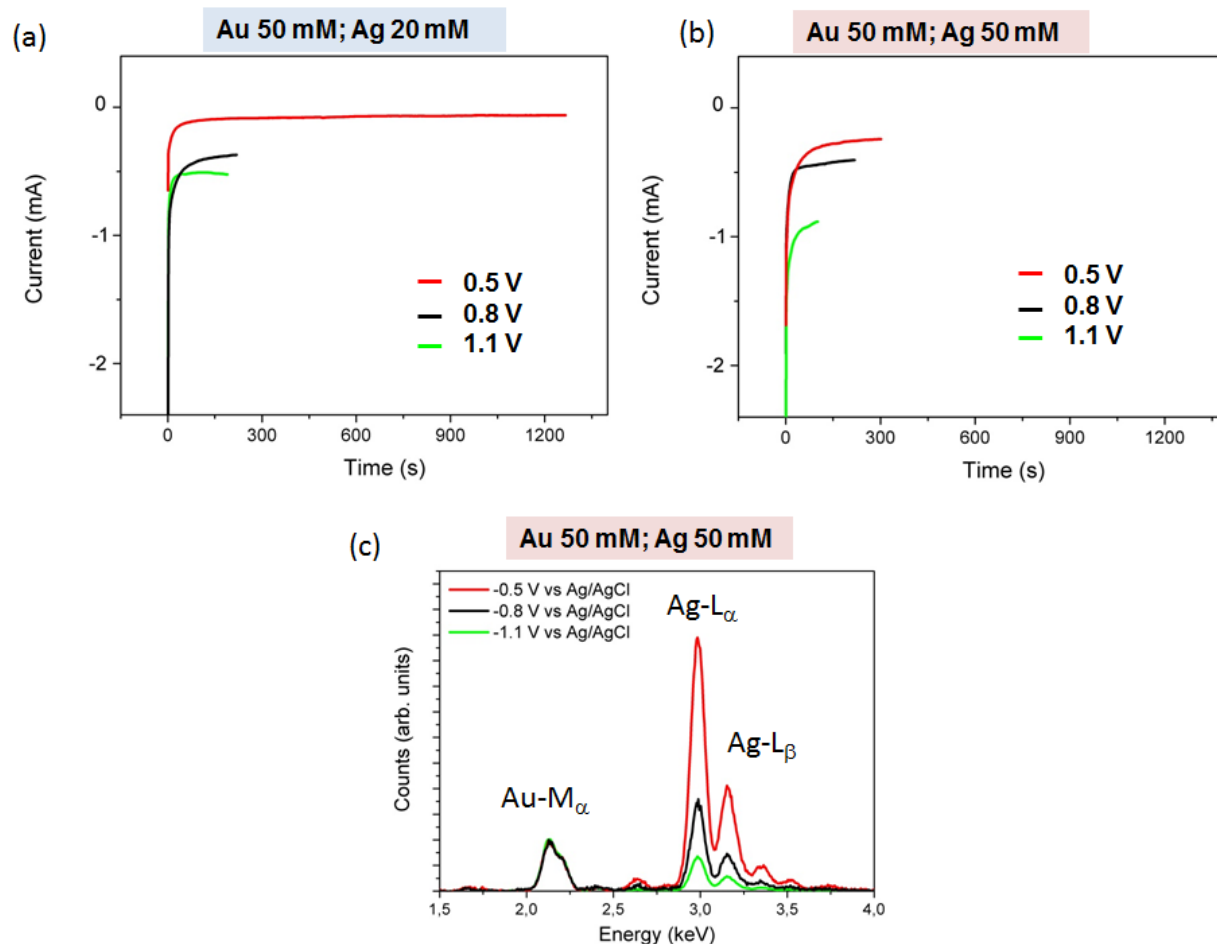


Figure S2: Potentiostatic current versus time curves for (a) an electrolyte containing 50 mM $\text{KAu}(\text{CN})_2$ and 20 mM $\text{KAg}(\text{CN})_2$ and (b) an electrolyte consisting of 50 mM $\text{KAu}(\text{CN})_2$ and 50 mM $\text{KAg}(\text{CN})_2$. All deposition parameters are given in the experimental section. In both cases three different voltages, being -0.5 V (red line), -0.8 V (black line) and -1.1 V (green line) were applied between the Ag/AgCl reference electrode and working electrode. In (c) the EDX spectra of bundles of nanowires corresponding to the three deposition curves in (b) are presented.

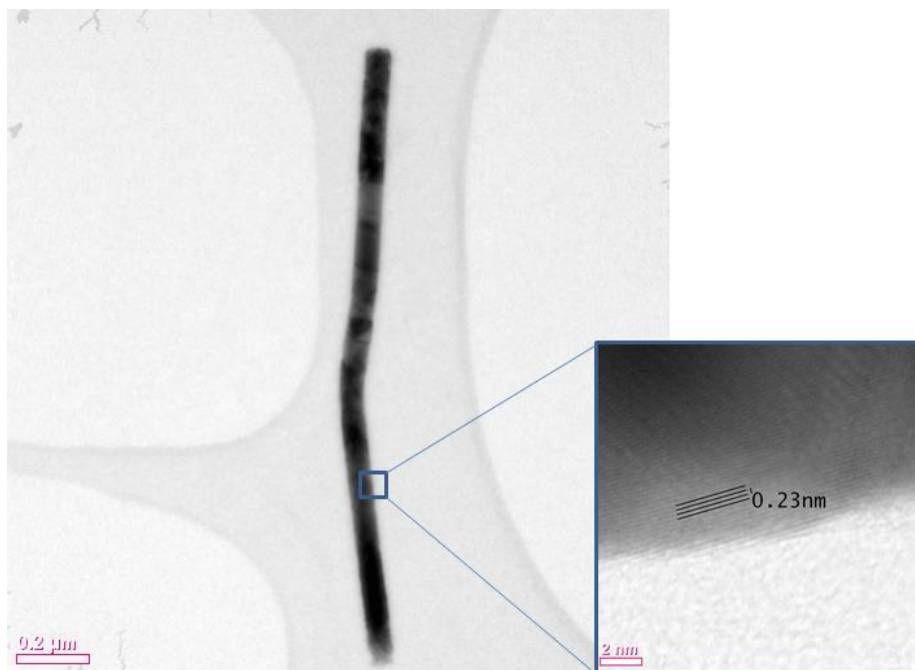


Figure S3: TEM image together with a high-resolution TEM image of a segmented nanowire showing that the segmented nanowires are polycrystalline. The wire was prepared using the same deposition parameters as given in the experimental section. A pulse sequence of $-1.1\text{V}/-0.5\text{V}/-1.1\text{ V}$ was applied. The corresponding pulse durations for the two -1.1 V pulses were 25 s and for the -0.5 V pulse it was 5 s.

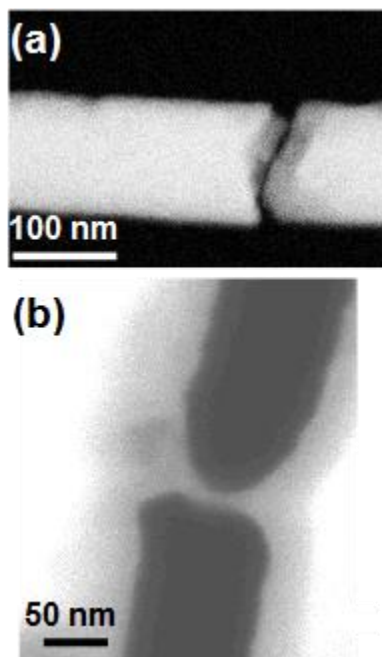


Figure S4: (a) TEM and (b) STEM in SEM image of very small gaps of about 5–10 nm prepared from pulsed deposition using a single-bath electrolyte. All parameters are given in the experimental section of the main manuscript. In both cases the pulse length for the deposition of the middle Ag-rich segment (deposited at -0.5 V vs Ag/AgCl) was 10 s.