SUPPLEMENTARY INFORMATION

Electrodeposition of Cu nanowires with ultrahigh-density twin boundaries: An electrochemical perspective on nanotwinning

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Supplementary Table

Table S1: The electrolytes and electrochemical anodization conditions employed in making the porous AAO templates with different pore diameters.

Pore size	Electrolyte	Anodic voltage	1st pore widening	2nd pore widening
35 nm	0.3M H_2SO_4	24 V	23°C / 15 min	23°C / 37 min
70 nm	0.3M $H_2C_2O_4$	40 V	23°C / 30 min	30°C / 55 min
90 nm	0.3M $H_2C_2O_4$	40 V	23°C/ 30 min	30°C / 71 min

Supplementary Figures

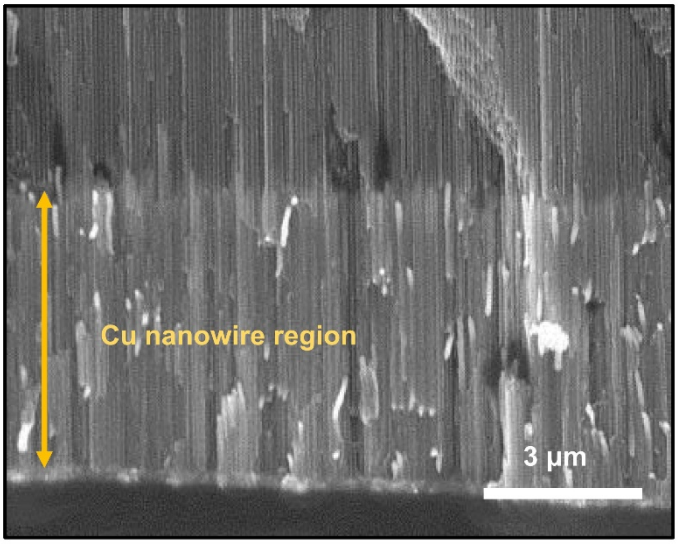

Figure S1. Cross-sectional SEM image of the AAO template with electrodeposited nt-Cu nanowires.

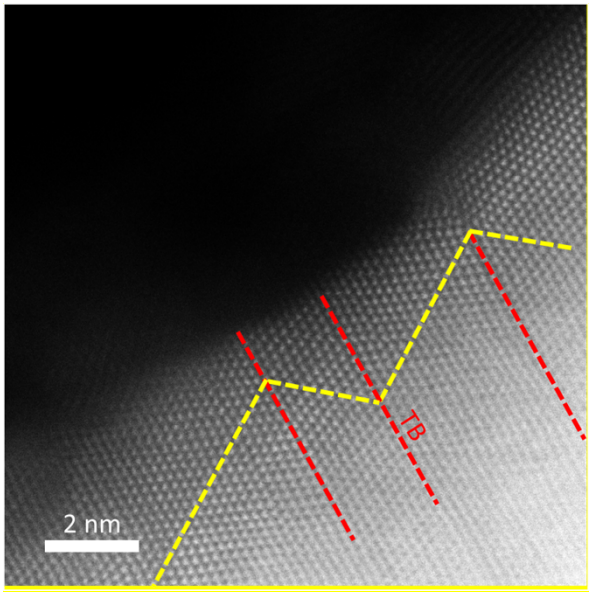

Figure S2. Dark-field scanning transmission electron microscopy (DF-STEM) micrograph revealing the atomic-resolution image of the twin structure in the nt-Cu nanowire.

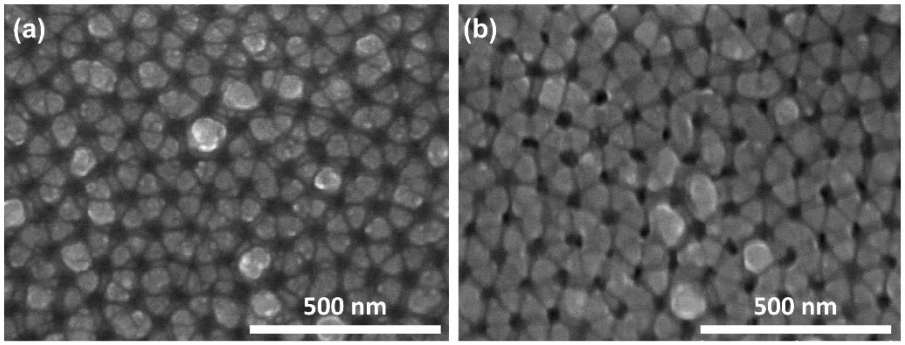

Figure S3. Planar SEM image of the Cu seed deposited on the porous AAO template before and after annealing at 250 ℃ for 1 hour.

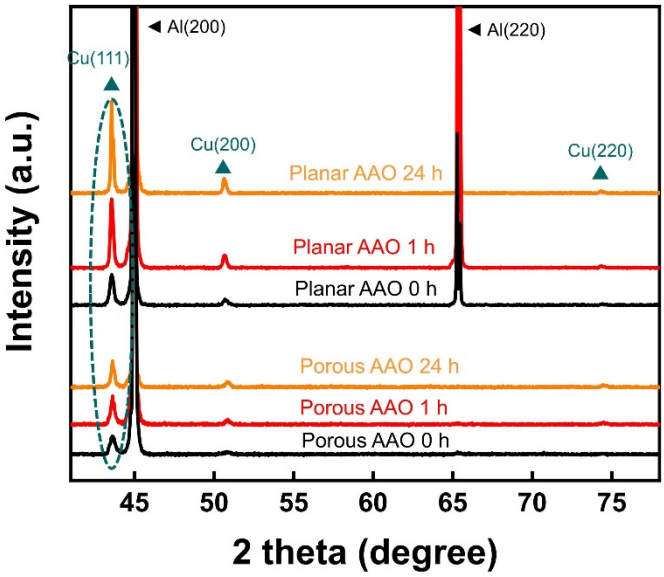

Figure S4. XRD patterns of the Cu seeds deposited on the porous and planar AAO after annealing at 250 ℃ for 0, 1, and 24 hours.

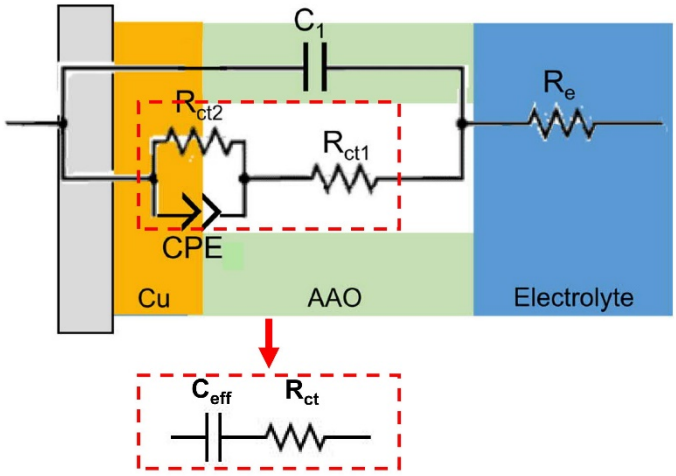

Figure S5. The equivalent circuit model for the porous AAO-templated electrode in an electrochemical cell.