Supplemental Information

Enhanced Quality CVD-Grown Graphene via a Double-Plateau Copper Surface Planarization Methodology

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Electropolishing polarization scan. Polarization scans were performed on a Struers Lectropol 5 automatic electropolishing unit to isolate the plateau regions where optimized surface planarization occurs. Copper foil sample areas of 5 cm^2 were scanned from 0 to 10V in 0.1V increments in an electrolyte composed of 330 mL dI H_20, 167 mL ortho-phosphoric acid, 167 mL ethanol, 33 mL isopropyl alcohol, and 3.3 g urea; monitoring the output current at each voltage. The output polarization sweep is shown in Figure S1, with plateau regions highlighted. Specific plateau regions of 1.5-2.1 V, similar to that utilized in previous studies, and the elevated voltage range of 7.5-8.2 V are present.

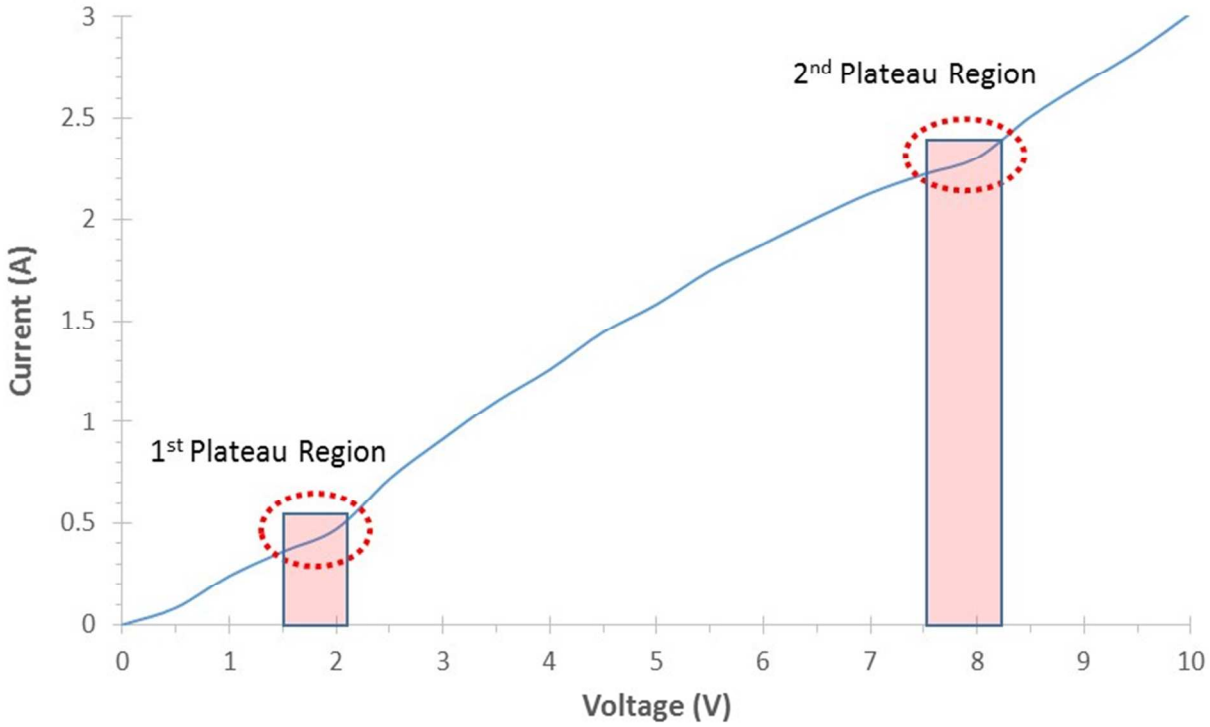

Figure S1. Polarization curve highlighting plataeau regions for optimal electropolishing setpoints.

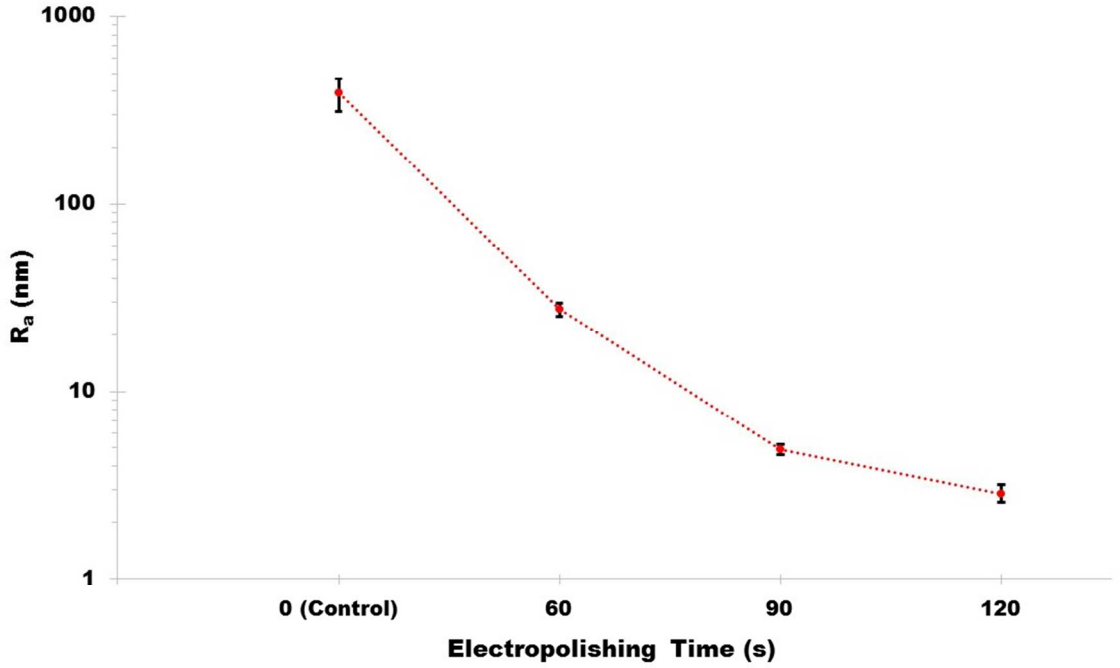

Figure S2. Roughness (Ra) measurements of copper growth substrates at select electropolishing conditions. Error bars indicate the 95% confidence interval.

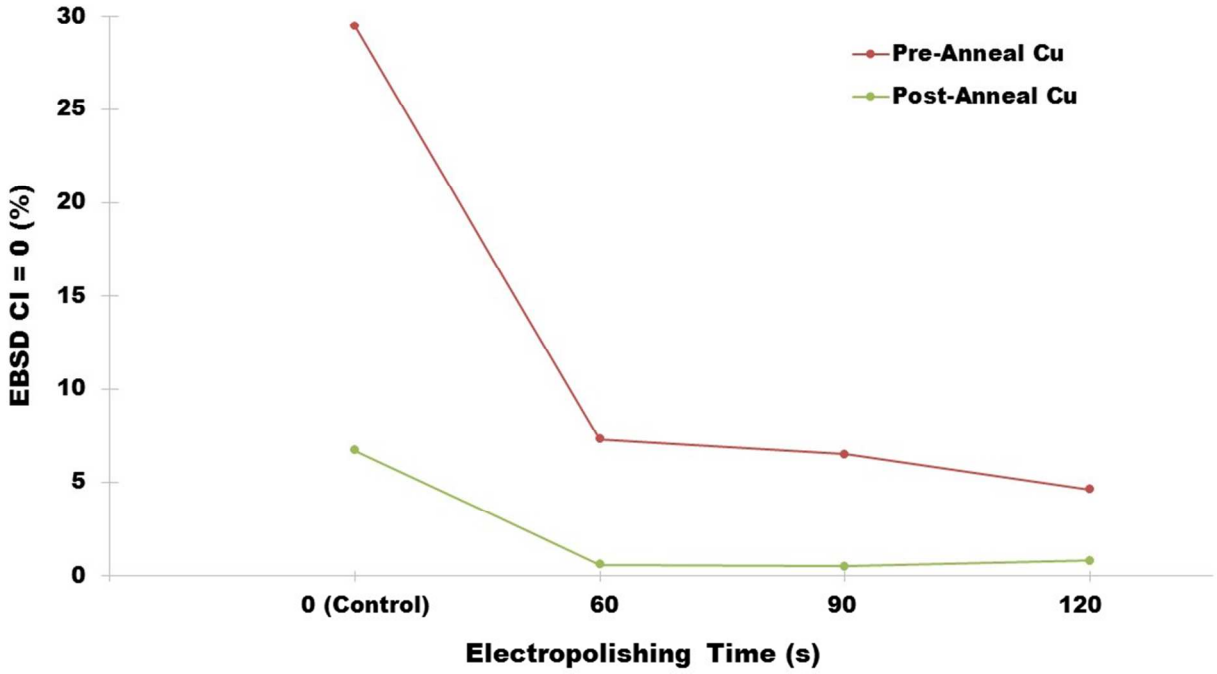

Figure S3. EBSD fraction of points at CI=0 for Cu foils after select electropolishing durations, both pre and post-annealing.