

## Supporting Information

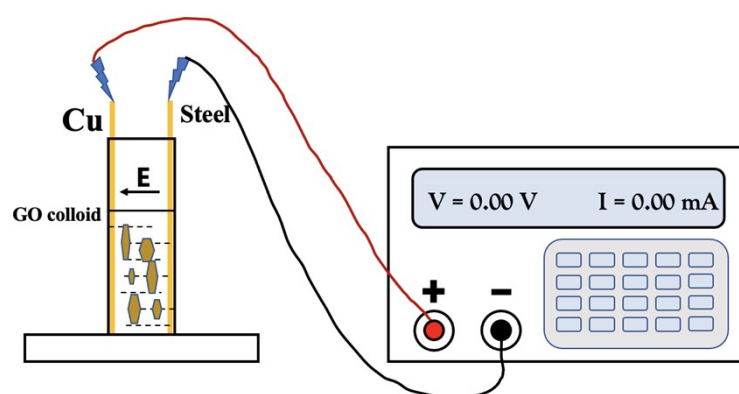
# Electrochemically Reduced Graphene Oxide (ERGO)-Cu Bilayer Structure Fabricated at Room Temperature for Future Interconnect

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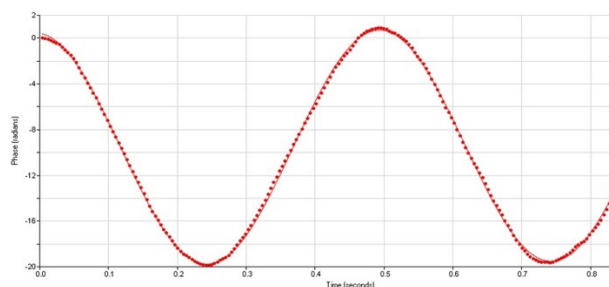
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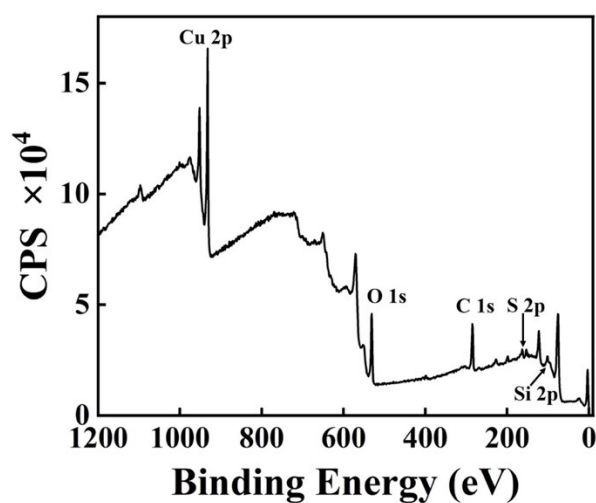


**Figure. S1** Schematic of EPD device.

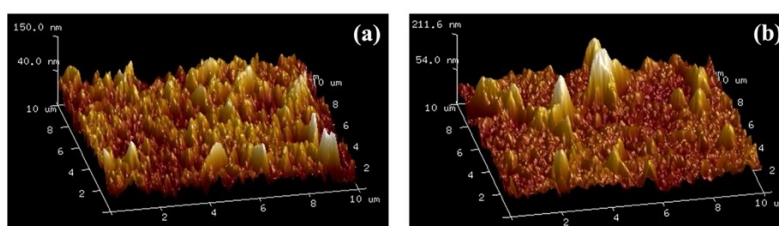


**Figure. S2** Phase change of colloid particles (dots) along is consistent well with the

electric field (curve) in dynamic light scattering.



**Figure. S3** XPS full spectrum of MPTS film self-assemble on Cu.



**Figure. S4** Three-dimensional AFM image of (a) GO-Cu (b) GO-MPTS-GO.

### Four-probe Sheet Resistance Test

Open the sheet resistance tester and preheat for more than 15 minutes to increase the reading stability. The sample was ultrasonic in ethanol for 2min to clean the surface. The sample is then placed on a flat table under the four probes. Press the four probes in the center of the square sample, as shown in Figure R3. Set parameters according to the sample size. After connecting to the const current source, the sheet resistance values obtained under the conditions of forward current and reverse current were recorded, respectively. Repeat this step four times along the four sides of the square and average

the eight results to get the sheet resistance value of a sample. Take the average of the five duplicate samples as its final sheet resistance value.