

Supporting Information for

Beyond Graphene Foam, a New Form of Three-Dimensional Graphene for Supercapacitor Electrode

Lu Zhang ^a, Derek DeArmond ^{ab}, Noe T. Alvarez ^a, Daoli Zhao ^c, Tingting Wang ^c,
Guangfeng Hou ^a, Rachit Malik ^a, William R. Heineman ^c, Vesselin Shanov ^{a,b*}

^a Department of Mechanical and Materials Engineering, University of Cincinnati, Cincinnati, OH 45221-0072, USA

^b Department of Biomedical, Chemical and Environmental Engineering, University of Cincinnati, OH, 45221-0012, USA

^c Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221-0172, USA

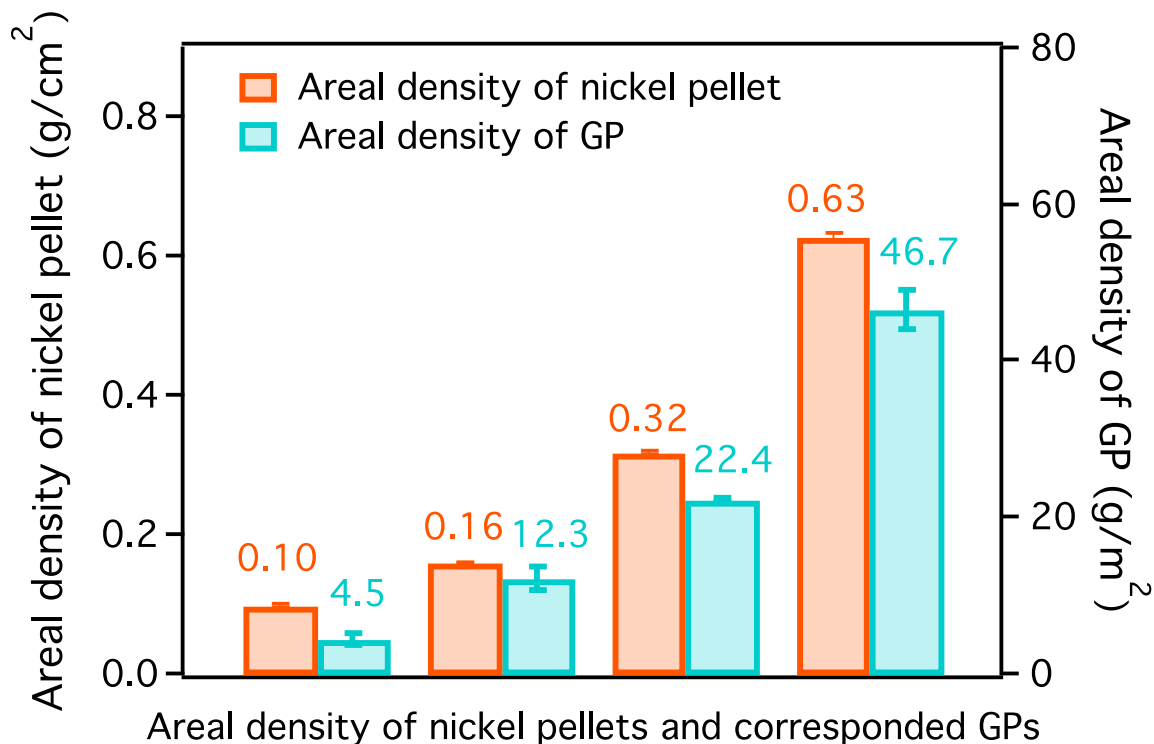


Figure S1. Areal density of different nickel pellets and of the corresponding graphene pellets (GPs). In this work, graphene pellet with areal density of 4.5 g/m² was used in electrochemical tests. The error bars represent the standard deviations calculated based on 3 tested specimens for each sample.

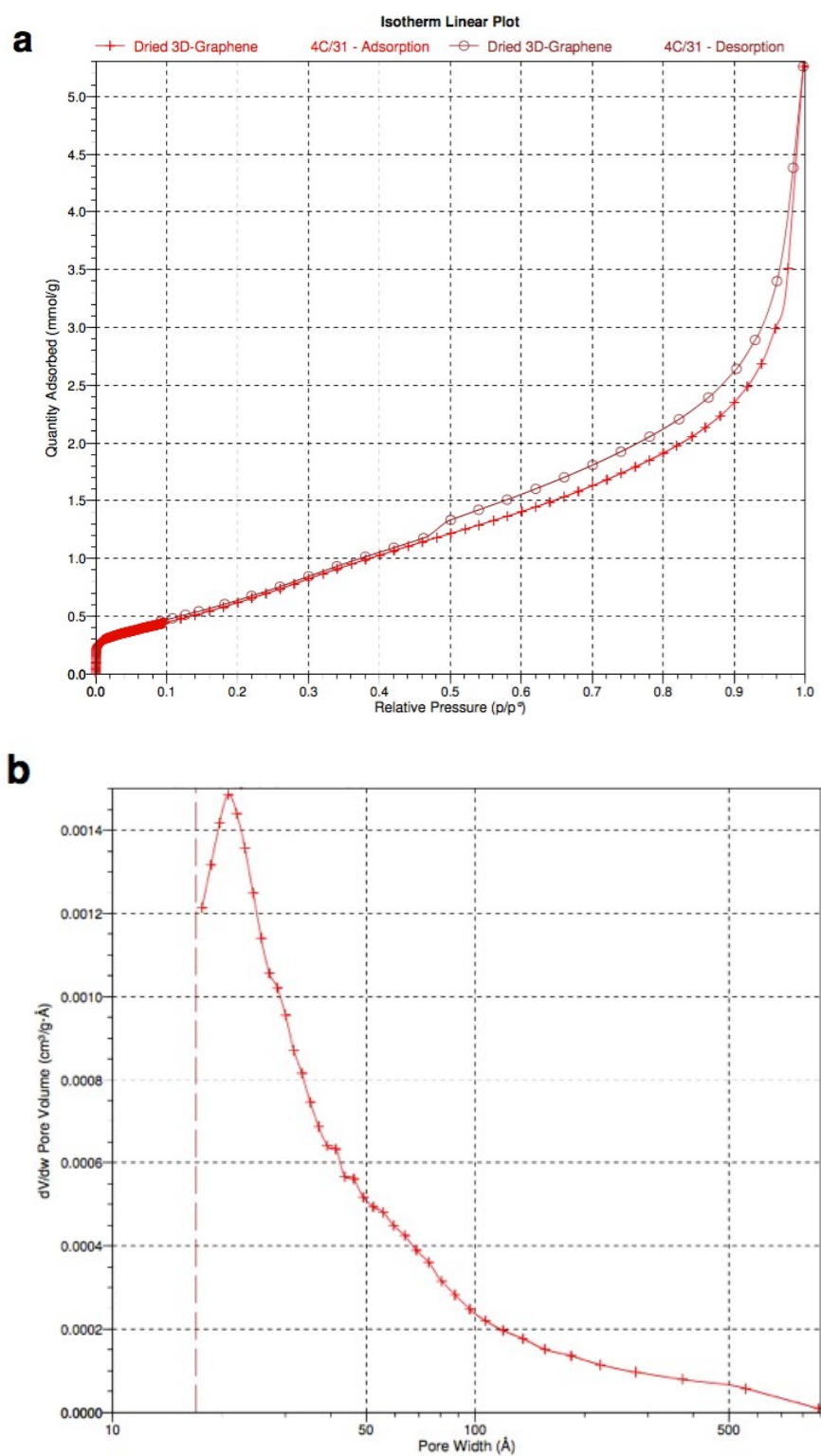


Figure S2. Brunauer-Emmett-Teller (BET) study of GPs. (a) Typical nitrogen adsorption-desorption isotherm. (b) Barrett-Joyner-Halenda (BJH) pore size distribution plots of GPs.

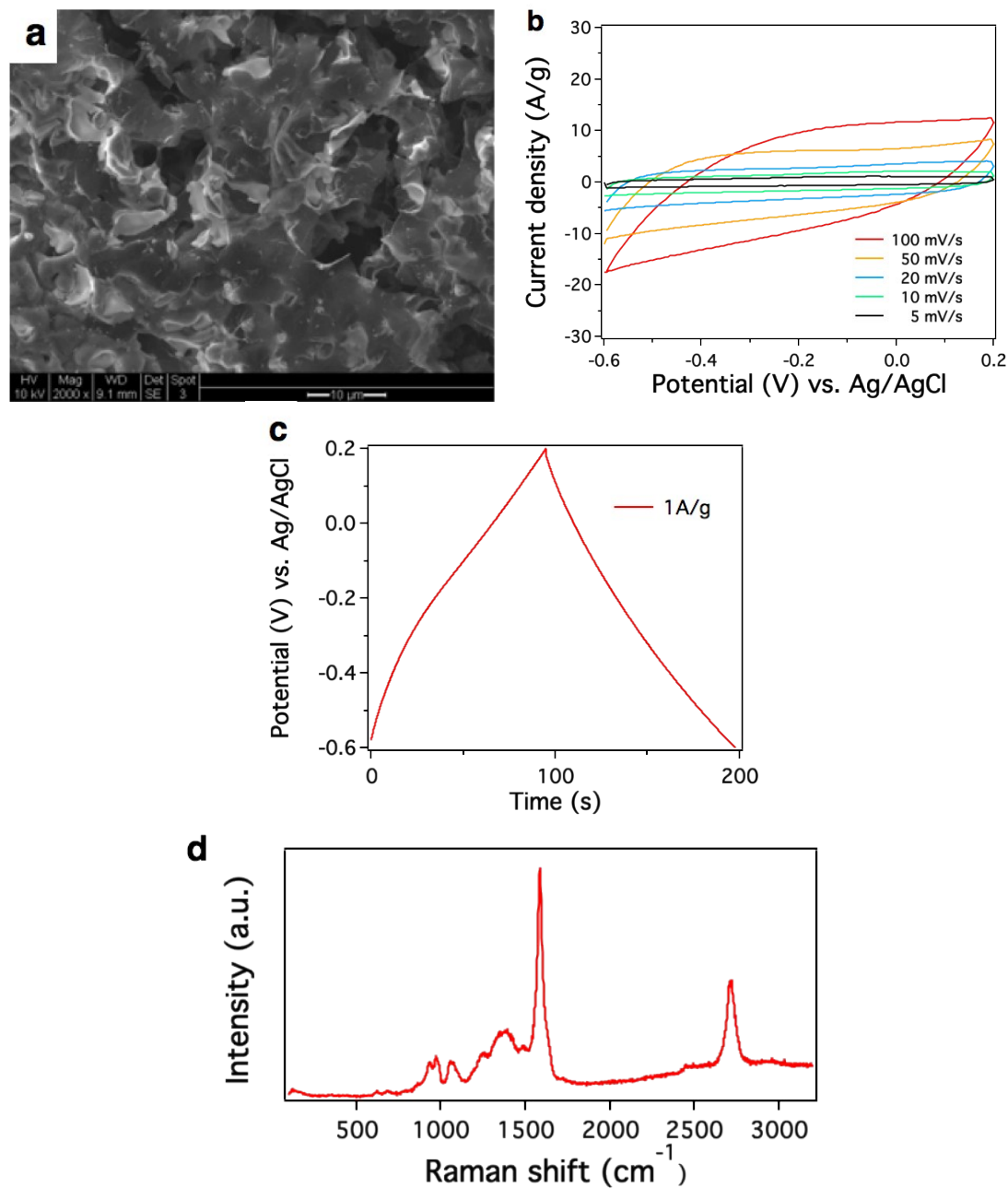


Figure S3. (a) SEM image of GP/Ppy sample. (b) Cyclic voltammetry curves of GP/Polypyrrole (Ppy) electrode at different scan rates from 5 mV/s to 100 mV/s. (c) Charge-discharge curve of GP/Ppy electrode at a current density of 1 A/g. (d) Raman Spectrum of Ppy/GP electrode showing typical peaks as suggested by the literature¹

References

1. Y. Zhao, J. Liu, Y. Hu, H. Cheng, C. Hu, C. Jiang, L. Jiang, A. Cao and L. Qu, *Advanced Materials*, 2013, **25**, 591-595.