

Supplementary Info

Three Dimensional Nickel-Graphene Core-Shell Electrodes

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Figure S1: XPS of nickel-graphene core-shell electrode. Top: blue, green, and red curves show the C1S peak of HOPG, graphene/Ni, and graphene after Ni etching respectively versus the pre-annealed amorphous carbon electrode (purple curve).

Figure S2 Expanded elemental peaks from Ni/graphene core/shellelectrode (red curve), nickel foil (green curve), and nickel-sputtered porous carbon (purple curve).

Figure S3: Focused ion beam cross sectional imaging of partially graphitized sample. Red arrows indicate surface bound carbon islands.

Figure S4: Enlarged back scattered image of nickel-graphene core-shell electrode showing incomplete filling of nickel core.

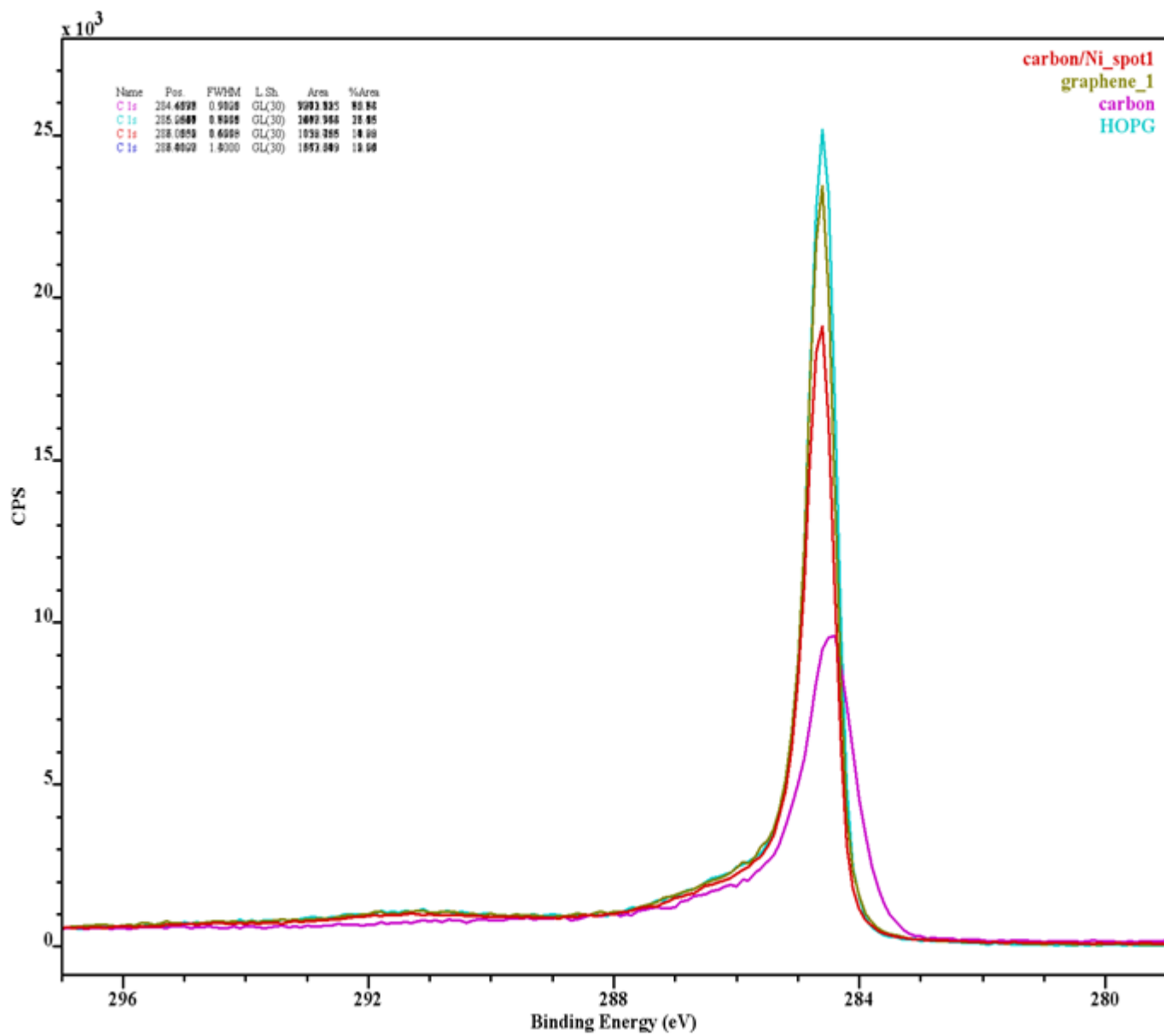


Fig. S1

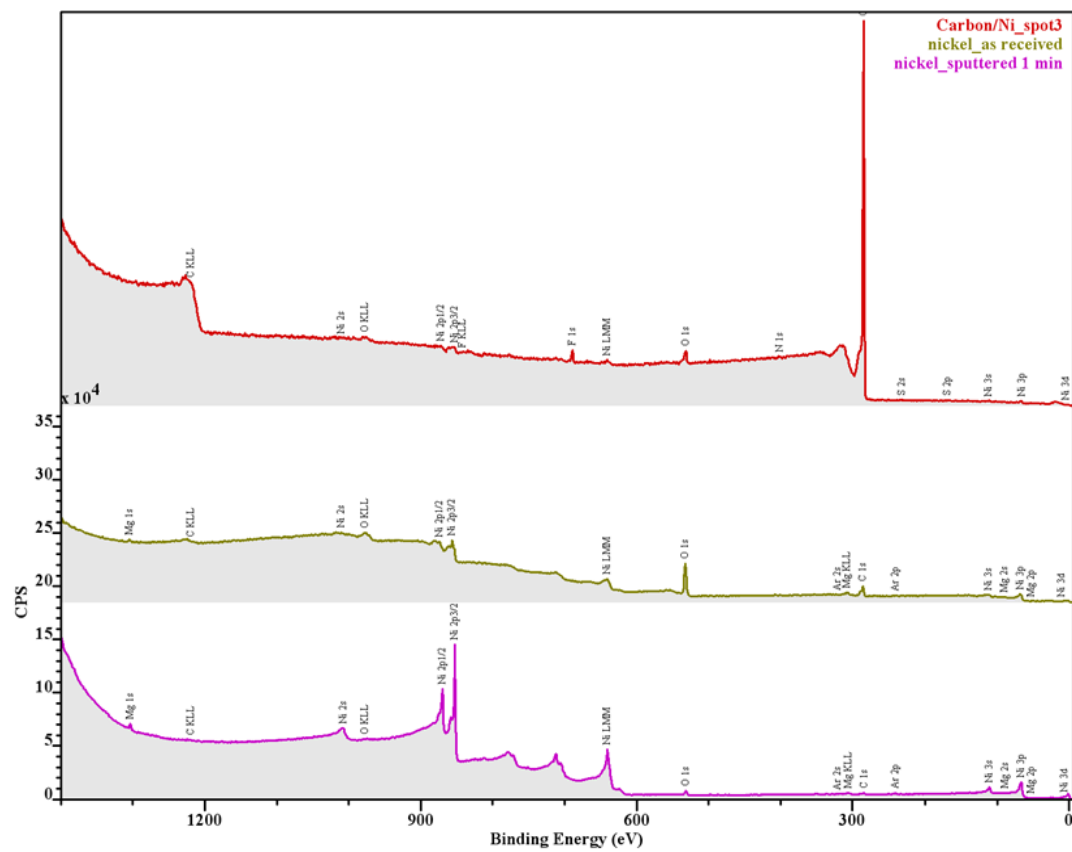


Fig. S2

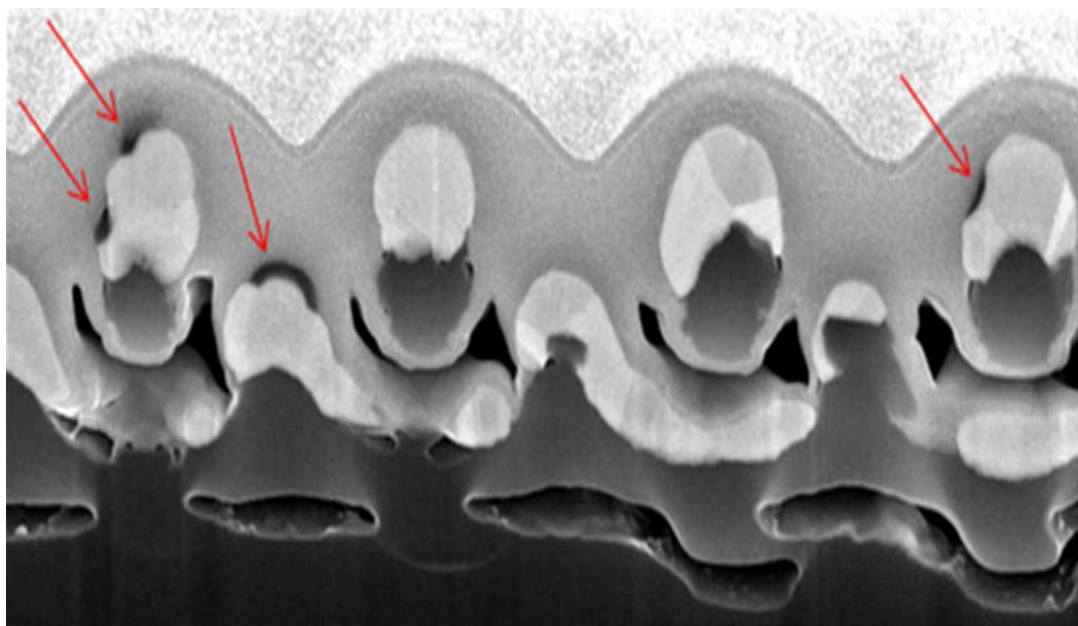


Fig. S3

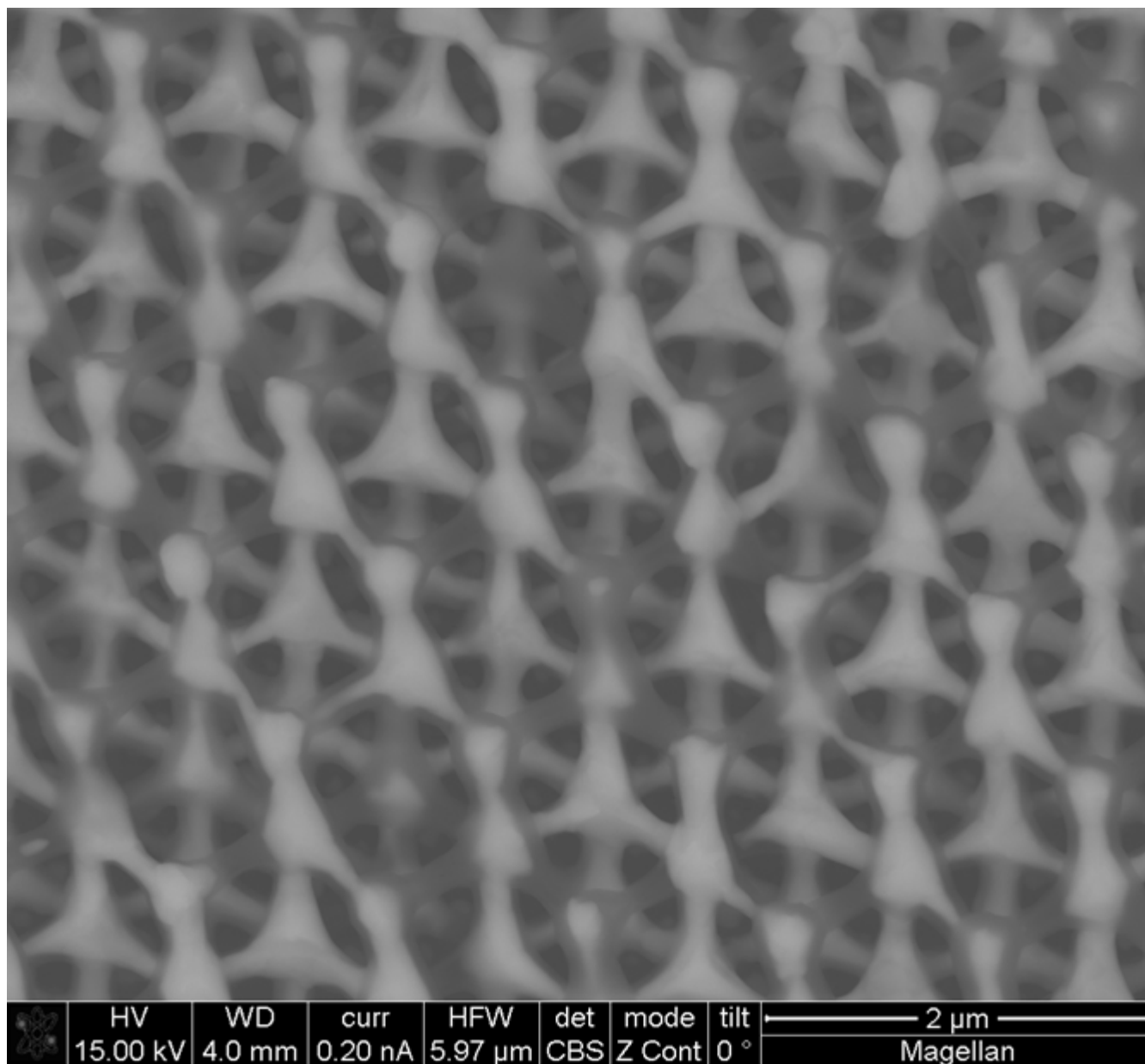


Fig. S4