Electronic Supplementary Information (ESI)

Hollow Core-shell Nanorod Supercapacitor Electrodes: Gap Matters

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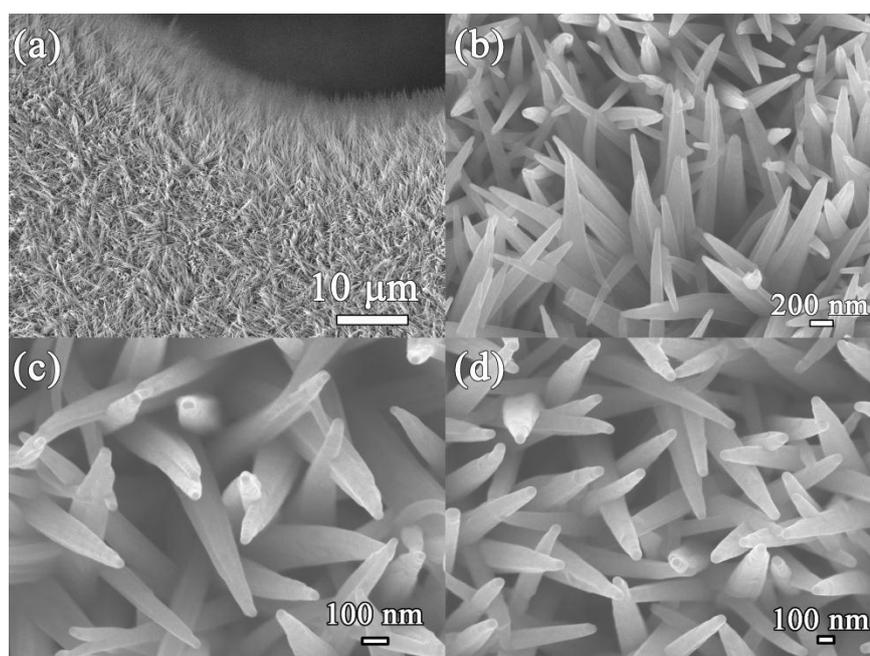
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Figure S1. (a) Large-scale SEM image of CoO nanowire on nickel foam. SEM image of CoO nanowire after ALD coating of (b) TiO_2 (165 cycles), (c) Al_2O_3 (80 cycles) and TiO_2 (165 cycles). (d) SEM image of the structure after immersing in KOH.
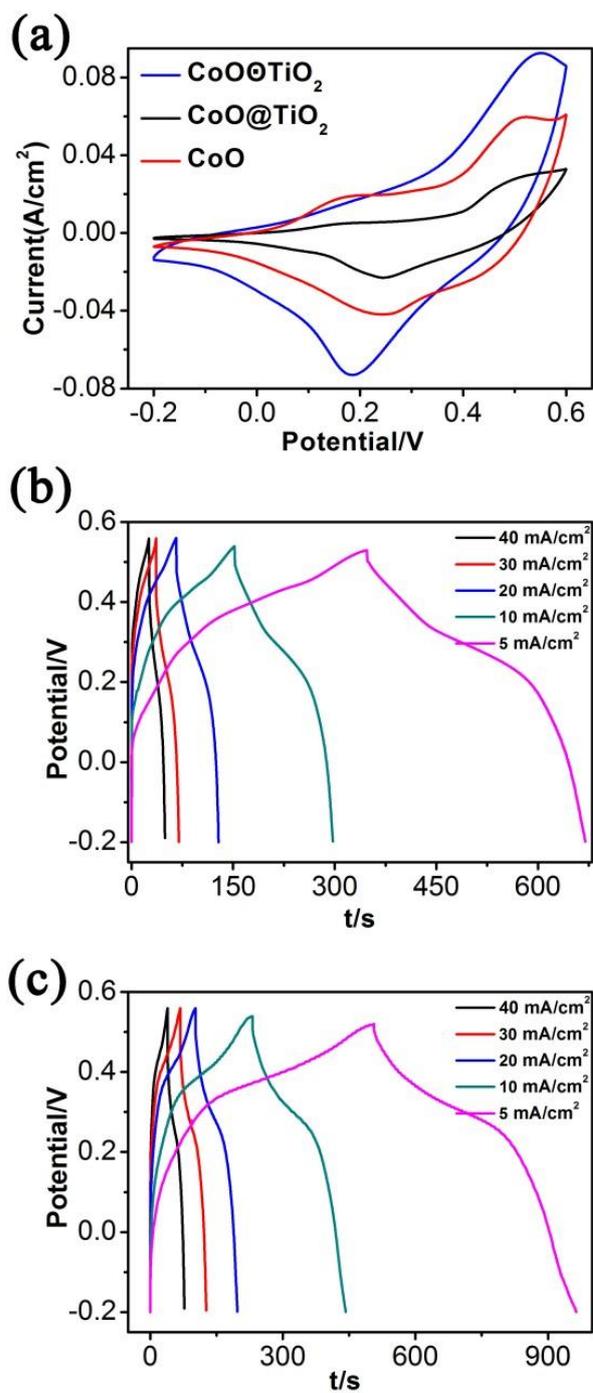
Figure S2. (a) CV curves of CoO, CoO@TiO$_2$ and CoOΘTiO$_2$. (b) Charge-discharge curves of CoO and CoOΘTiO$_2$ at different current densities.
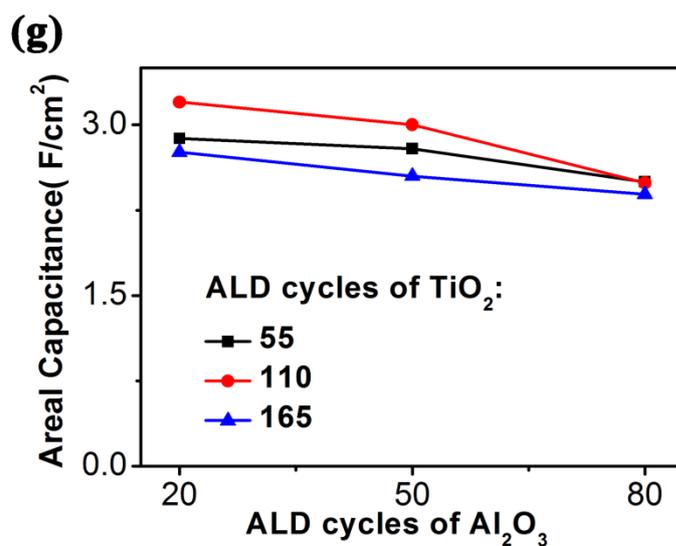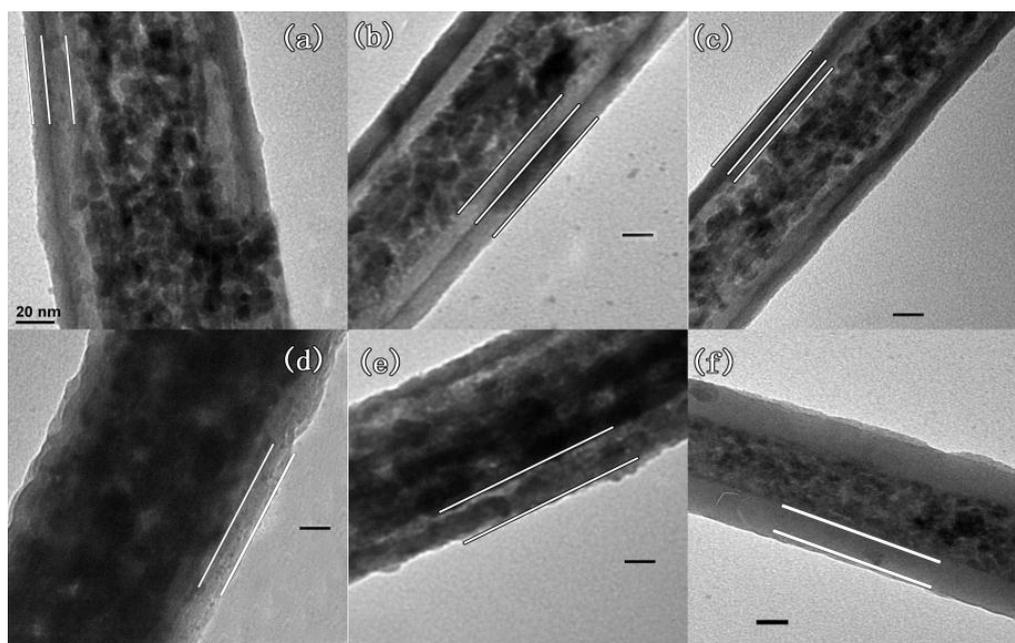
Figure S3. TEM images of CoO nanowire after ALD coating of the bilayer of Al_2O_3/TiO_2 with cycles of: (a) 80/55, (b) 50/110, (c) 20/110, (d) 0/110, (e) 0/165, and (f) 50/0. (g) Areal capacitance of the 9 structures with different cycles of ALD coating. 20 ALD cycles of Al_2O_3 (~3 nm thick) are used as the optimized gap thickness for supercapacitor characterization.
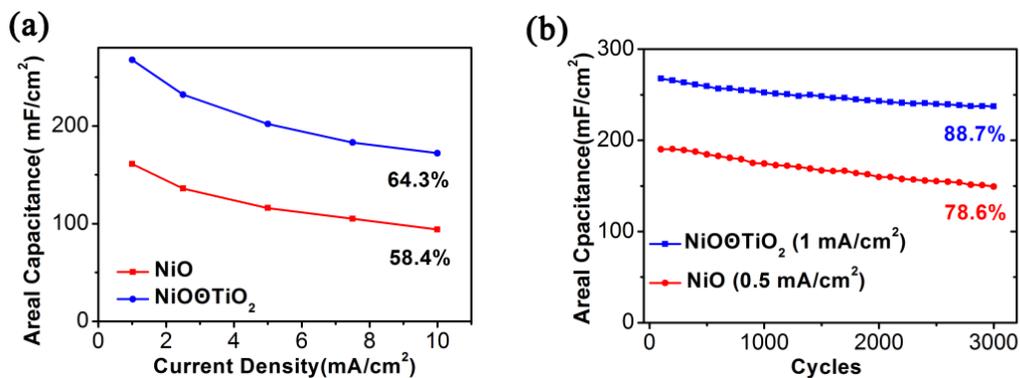
Figure S4. (a) Rate and (b) cycling behavior of the NiO and NiO⊙TiO₂ electrodes.