

## **Supporting Information**

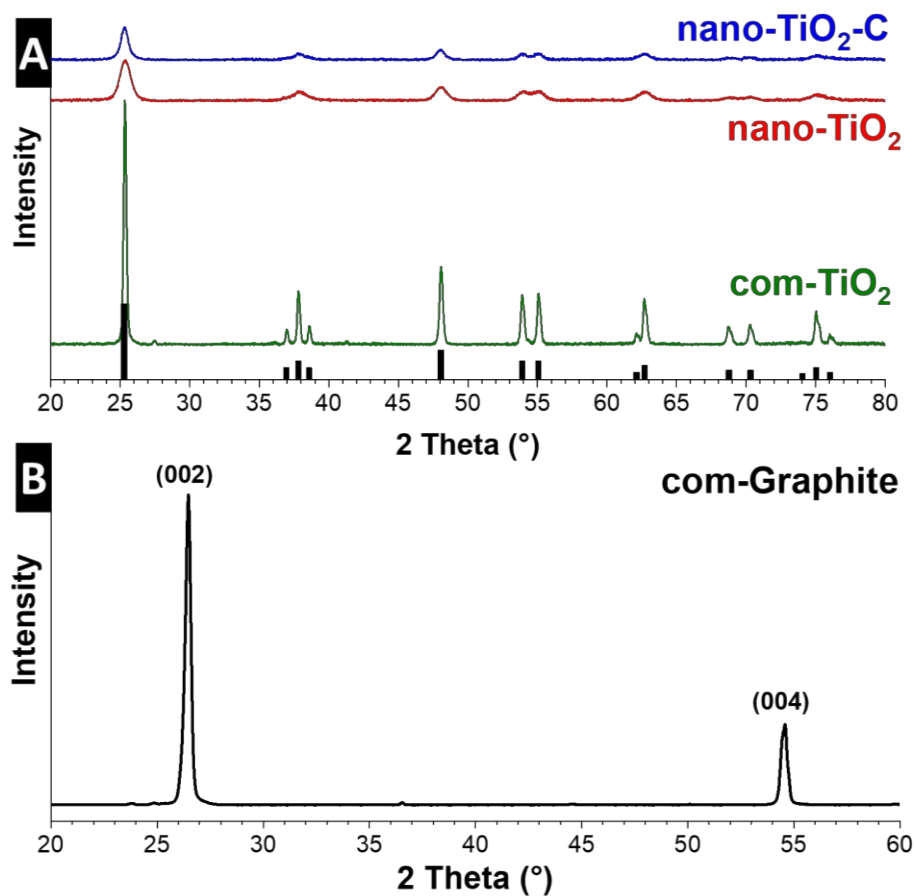
### **Fast and stable lithium-ion storage kinetics of anatase titanium dioxide/carbon onion hybrid electrodes**

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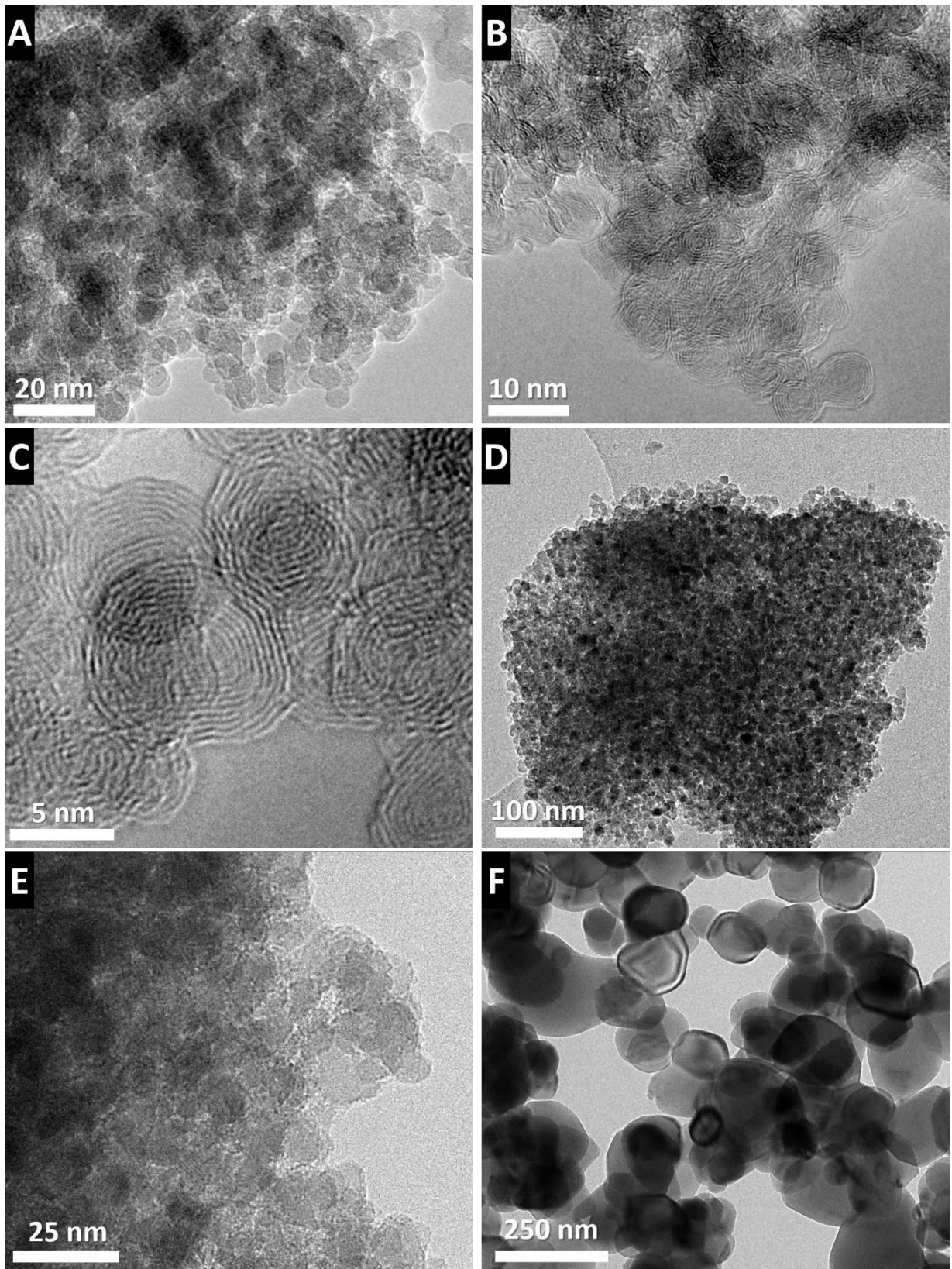
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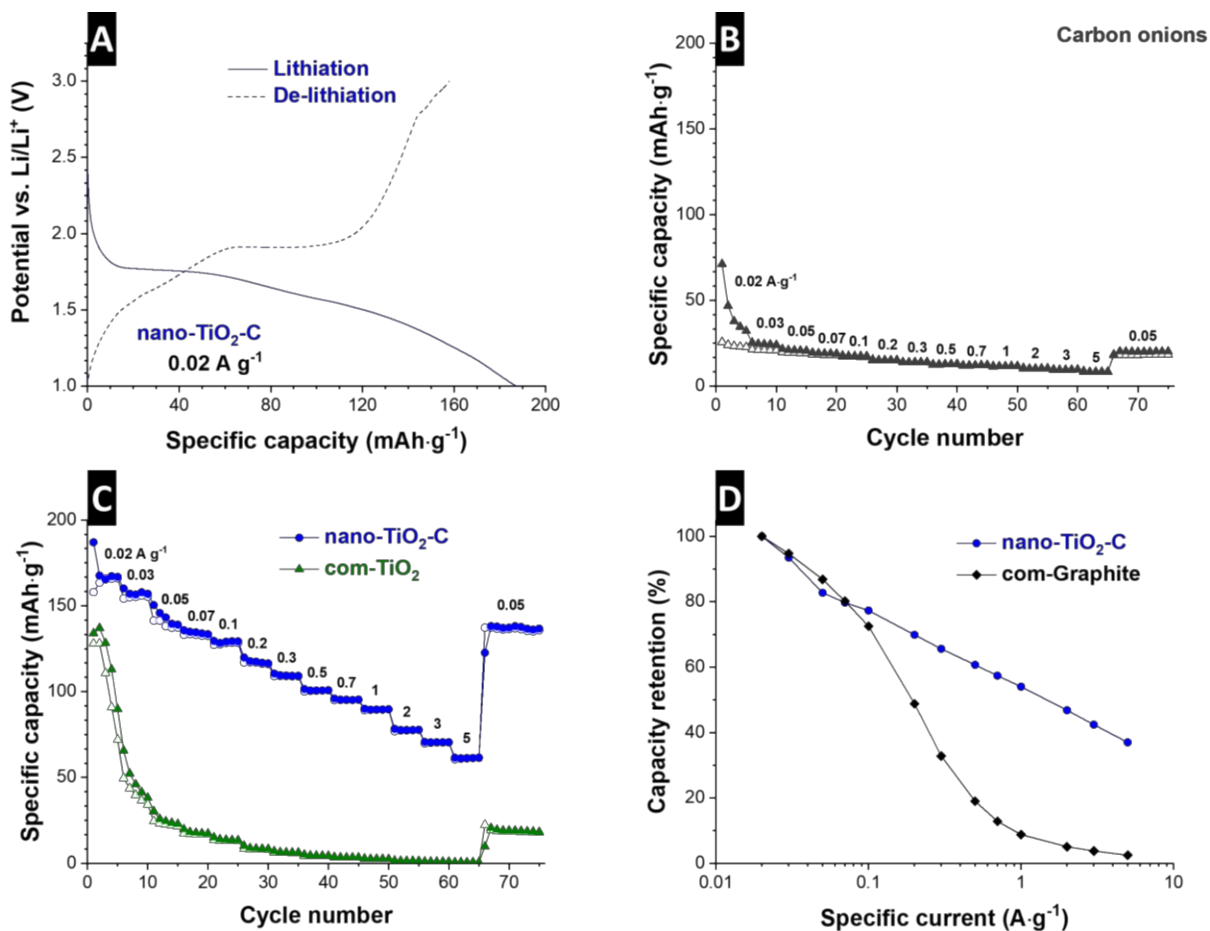
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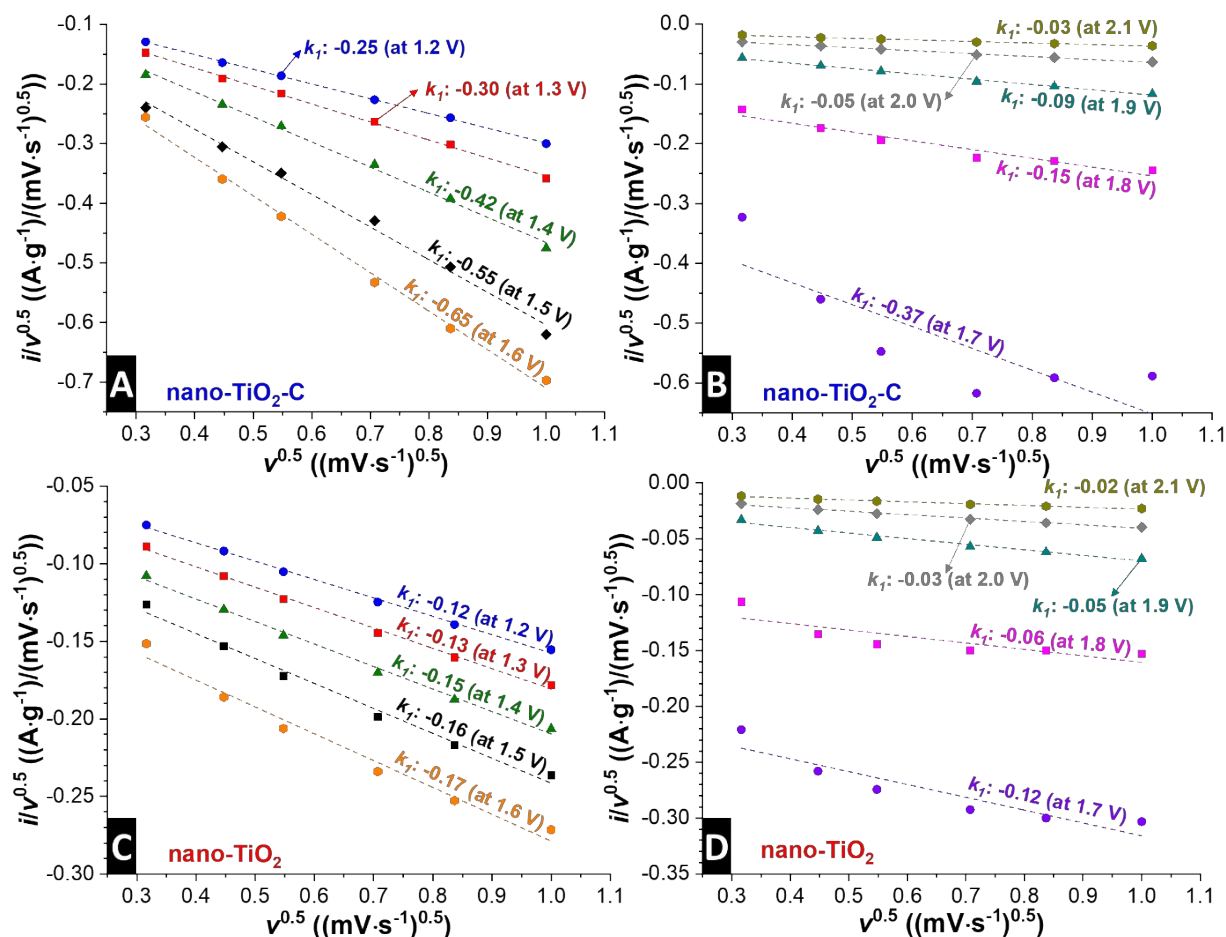
**Fig. S1:** XRD patterns of (A) nano-TiO<sub>2</sub>-C, nano-TiO<sub>2</sub>, and com-TiO<sub>2</sub> and (B) com-graphite.



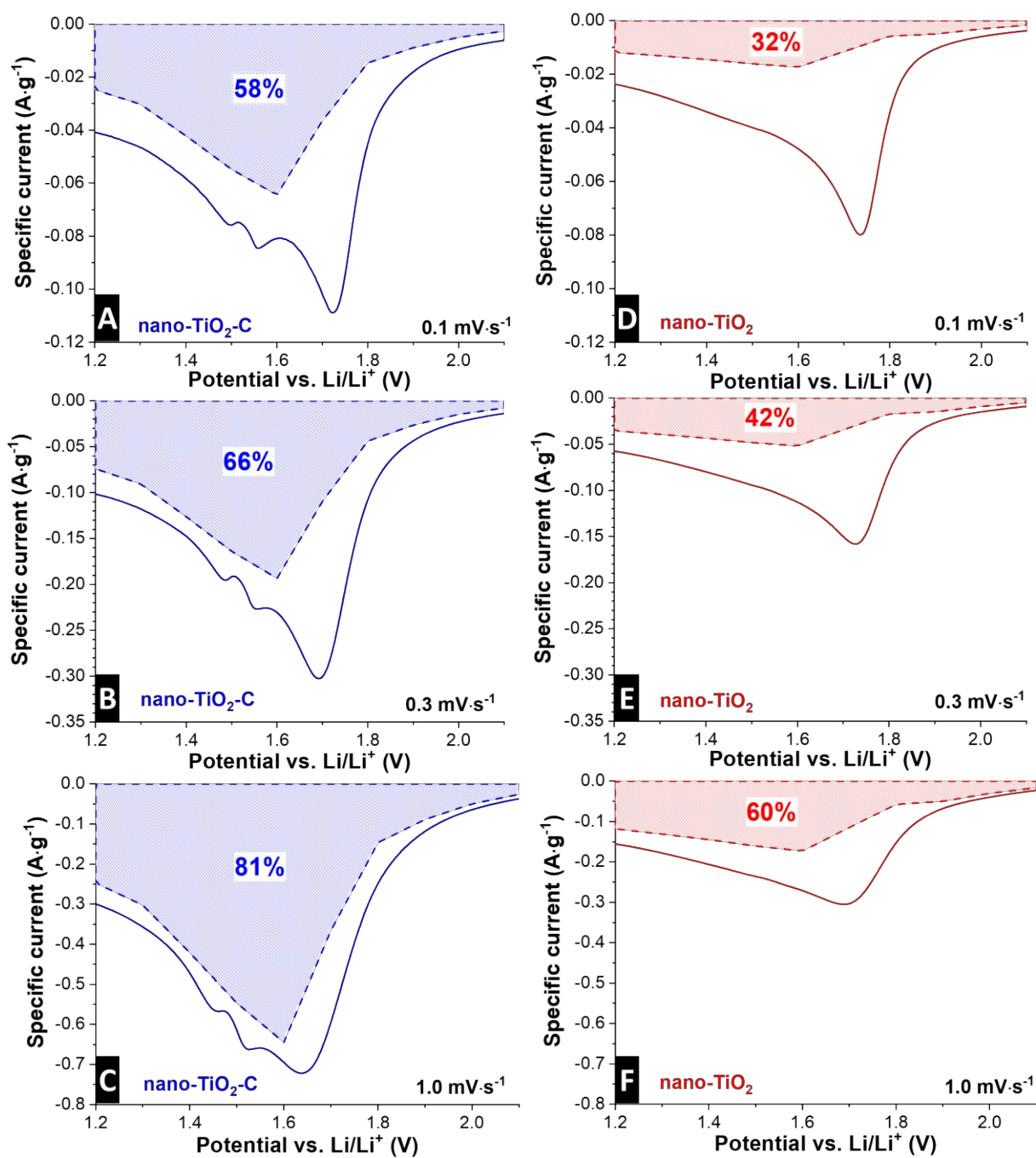
**Fig. S2:** TEM images of (A-C) carbon onions, (D-E) nano-TiO<sub>2</sub>, and (F) com-TiO<sub>2</sub>.



**Fig. S3:** (A) First-cycle galvanostatic charge-discharge curve of nano-TiO<sub>2</sub>-C at 0.02 A·g<sup>-1</sup>. (B) Rate performance of carbon onions at various currents of 0.02-5 A·g<sup>-1</sup> in the potential range of 1.0-3.0 V vs. Li/Li<sup>+</sup>. (C) Comparison of rate performance of nano-TiO<sub>2</sub>-C and com-TiO<sub>2</sub> at currents of 0.02-5 A·g<sup>-1</sup>. (D) Capacity retention of nano-TiO<sub>2</sub>-C and com-graphite at currents of 0.02-5 A·g<sup>-1</sup>.



**Fig. S4:**  $v^{0.5}$  vs.  $i/v^{0.5}$  plots of cathodic current (lithiation) on nano-TiO<sub>2</sub>-C in the potential range of (A) 1.2-1.6 V and (B) 1.7-2.1 V vs. Li/Li<sup>+</sup>.  $v^{0.5}$  vs.  $i/v^{0.5}$  plots of cathodic current (lithiation) on nano-TiO<sub>2</sub> in the potential range of (C) 1.2-1.6 V vs. Li/Li<sup>+</sup> and (D) 1.7-2.1 V vs. Li/Li<sup>+</sup>.



**Fig. S5:** CV data of (A-C) nano-TiO<sub>2</sub>-C and (D-F) nano-TiO<sub>2</sub> with separation between the total current (solid line) and capacitor-like current (shaded region) in the voltage range from 1.2-2.1 V vs. Li/Li<sup>+</sup> at three different scan-rates (0.1-1.0 mV.s<sup>-1</sup>) for lithiation.