

Support Information

Ultrafine Nb₂O₅ Nanocrystal Coating on Reduced Graphene Oxide as Anode Material for High Performance Sodium Ion Battery

Litao Yan,[†] Gen Chen,[†] Swagotom Sarker,[†] Stephanie Richins,[†] Huiqiang Wang,^{†,‡} Weichuan Xu,[†] Xianhong Rui,^{*,§} Hongmei Luo^{*†}

[†]Department of Chemical and Materials Engineering, New Mexico State University, New Mexico 88003, United States.

[‡]College of Mechanical and Electrical Engineering, Agricultural University of Hebei, Baoding 071001, China.

[§]School of Energy and Environment, Anhui University of Technology, Maanshan 243002, China.

Corresponding Author

* Tel: 18555558965, E-mail: xhrui@outlook.com (X. Rui); Tel: 575-646-4204, Fax: 575-646-7706. E-mail: hluo@nmsu.edu (H. Luo)

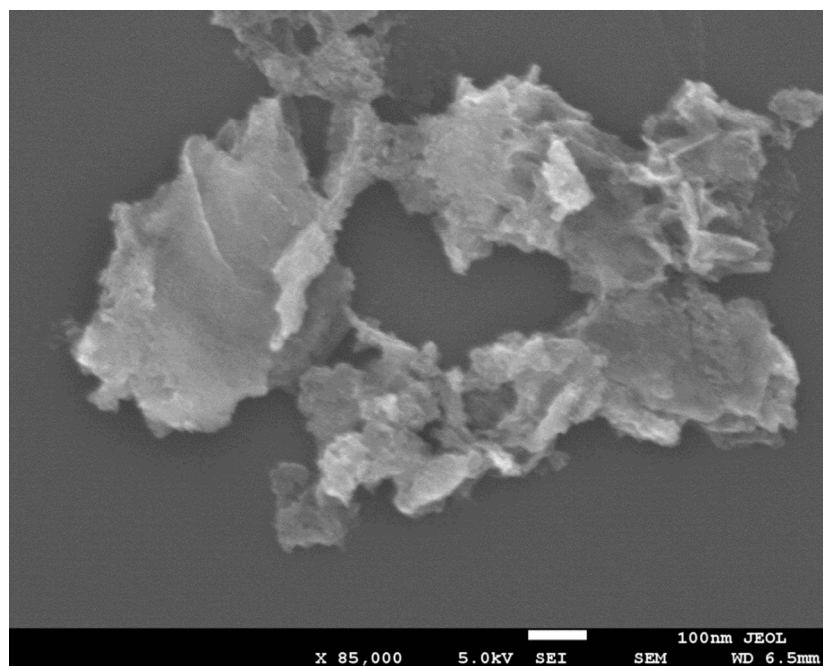


Figure S1. FESEM of Nb₂O₅ NCs/rGO.

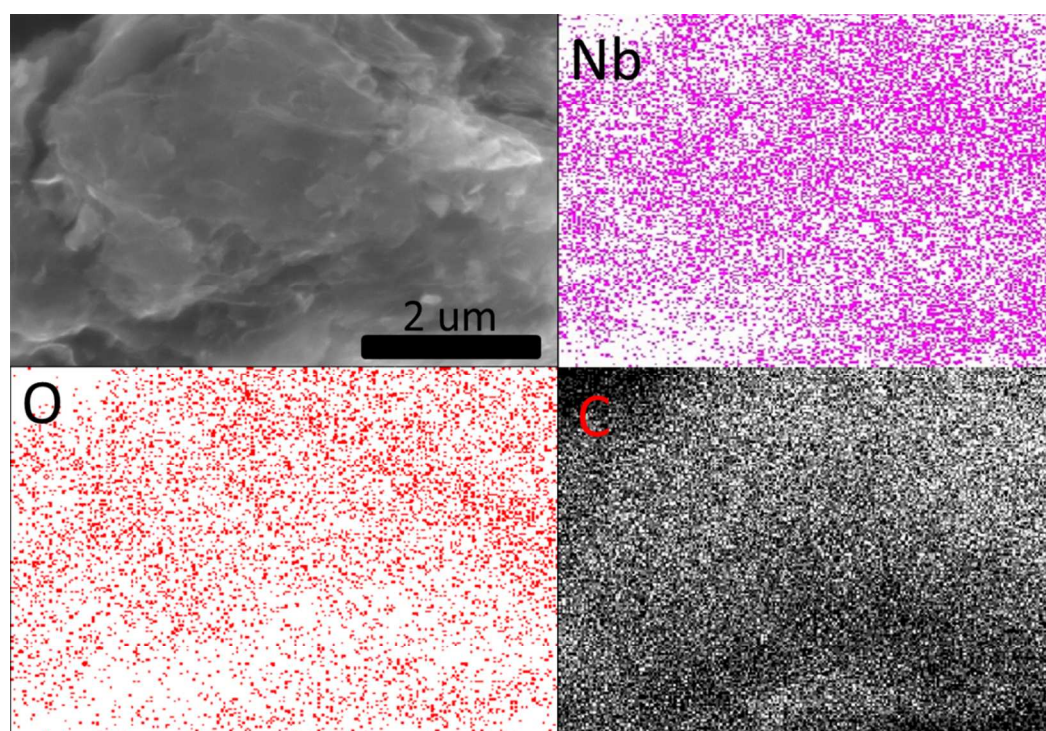


Figure S2. SEM-EDX mapping for Nb₂O₅ NCs/rGO.

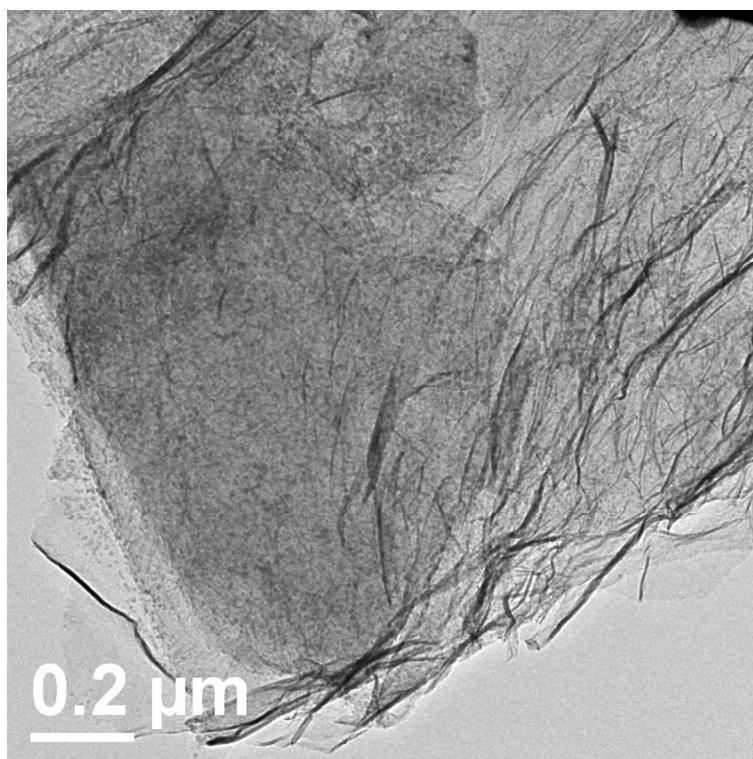


Figure S3. TEM image of Nb₂O₅ NCs/rGO at low magnification.

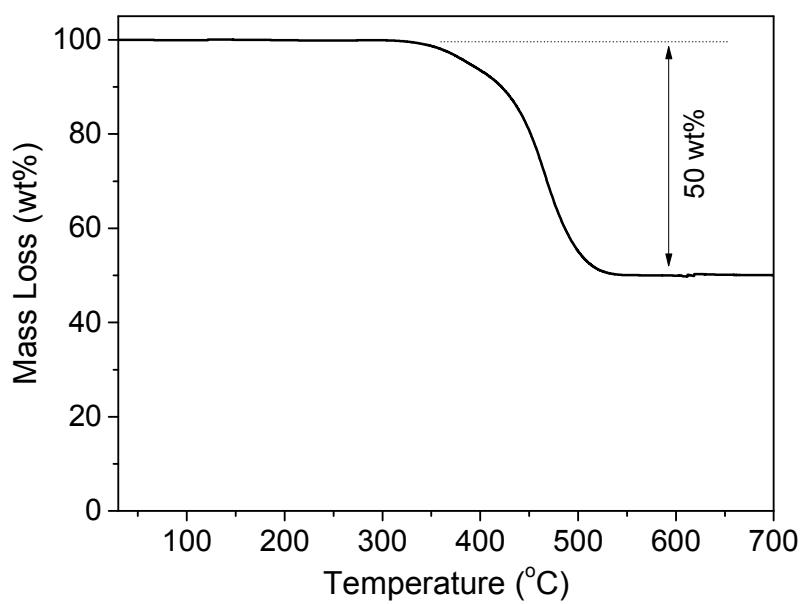


Figure S4. Thermogravimetric analysis (TGA) of Nb₂O₅ NCs/rGO.

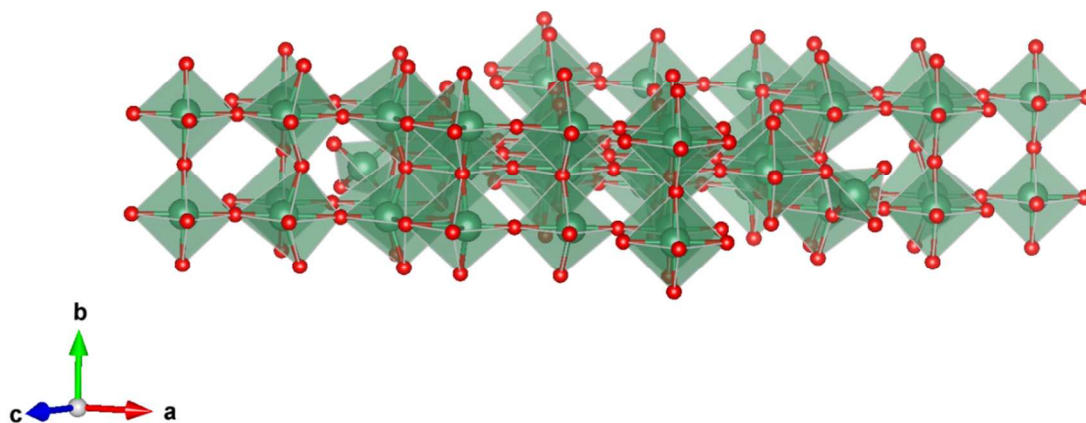


Figure S5. 3D structural scheme of $T\text{-Nb}_2\text{O}_5$. $T\text{-Nb}_2\text{O}_5$ octahedra are stacked along the c -axis and the layered arrangement of niobium (green) and oxygen (red) atoms is formed within the a - b plane.

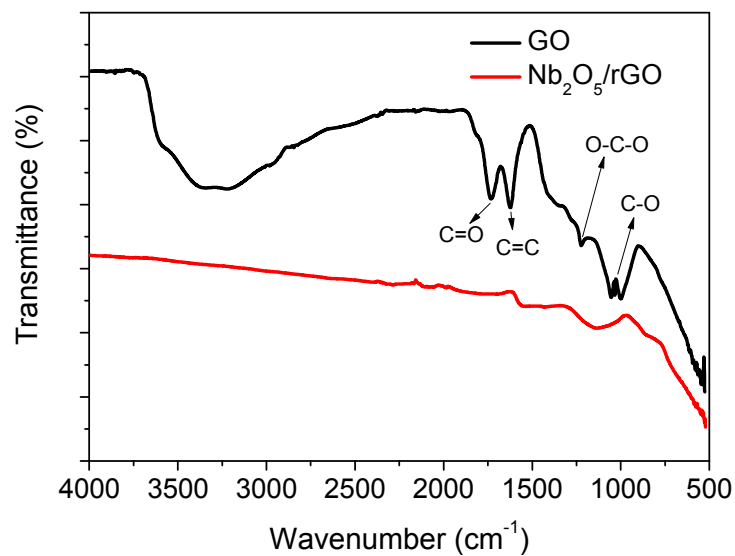


Figure S6. FTIR of GO and Nb_2O_5 NCs/rGO.

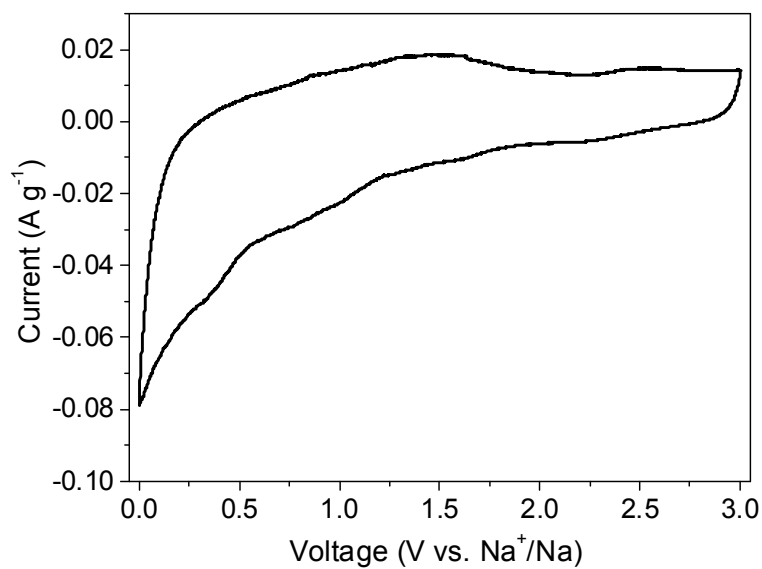


Figure S7. The typical CV profile for the pure Nb₂O₅.

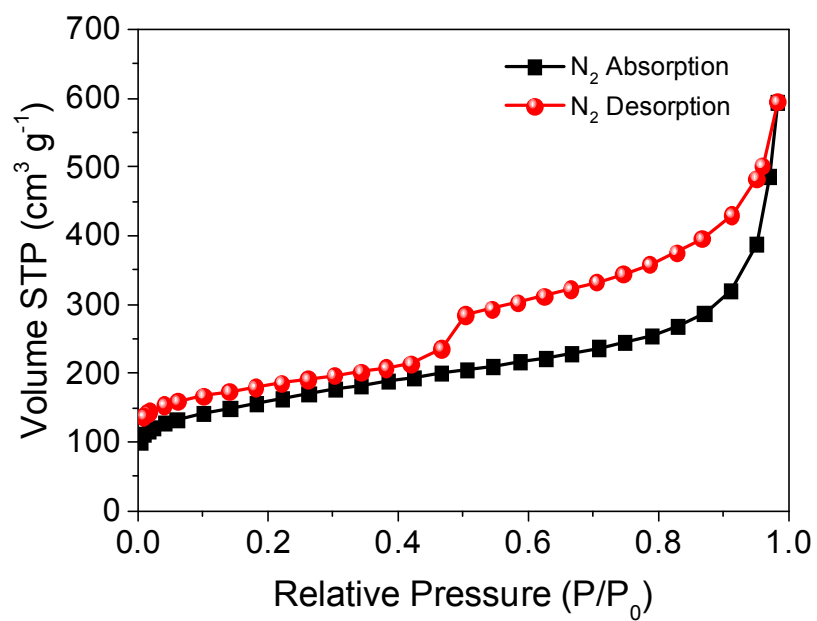


Figure S8. Nitrogen adsorption/desorption profile for Nb₂O₅ NCs/rGO.

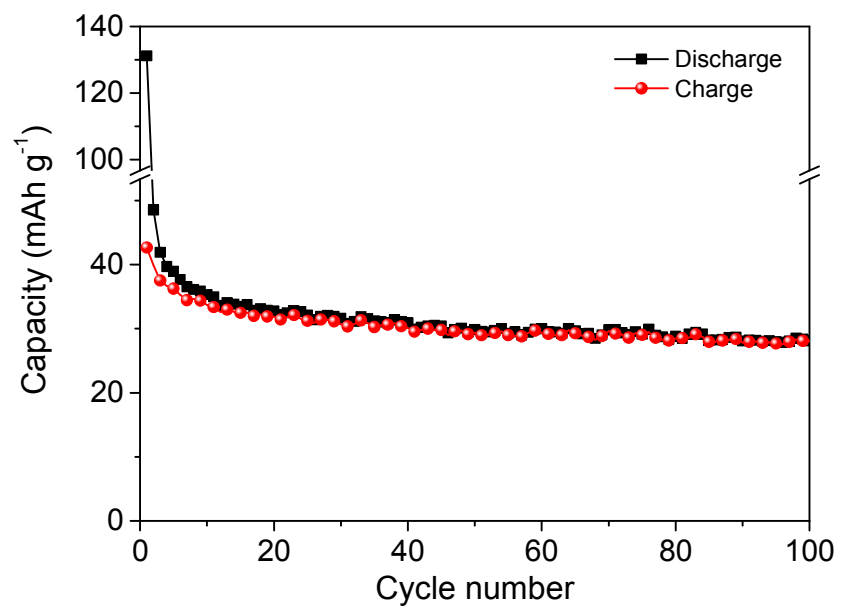


Figure S9. The capacity of rGO at a current density of 0.2 A g^{-1} .

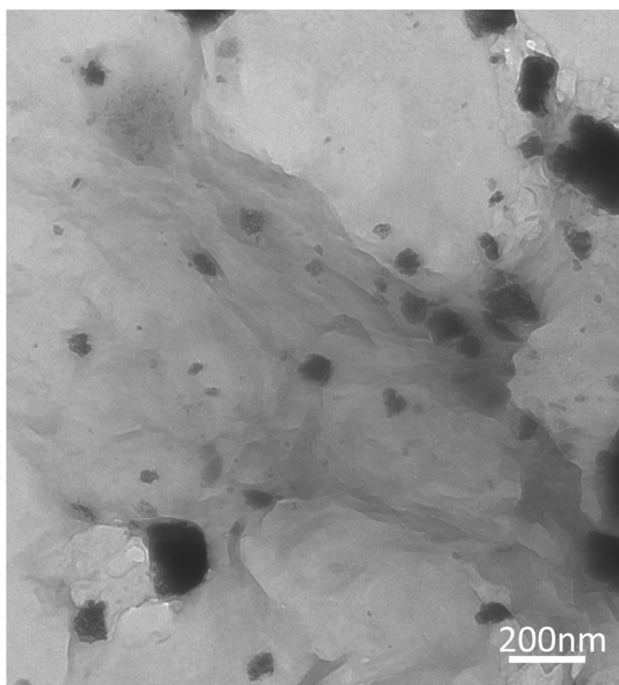


Figure S10. TEM image of mechanically mixed Nb_2O_5 and rGO.

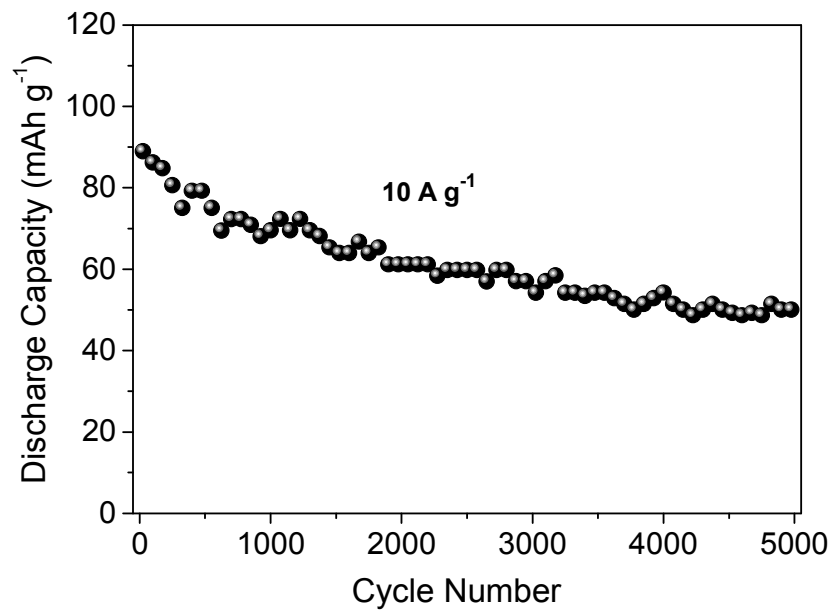


Figure S11. Cycle performance of Nb₂O₅ NCs/rGO at a current density of 10 A g⁻¹.

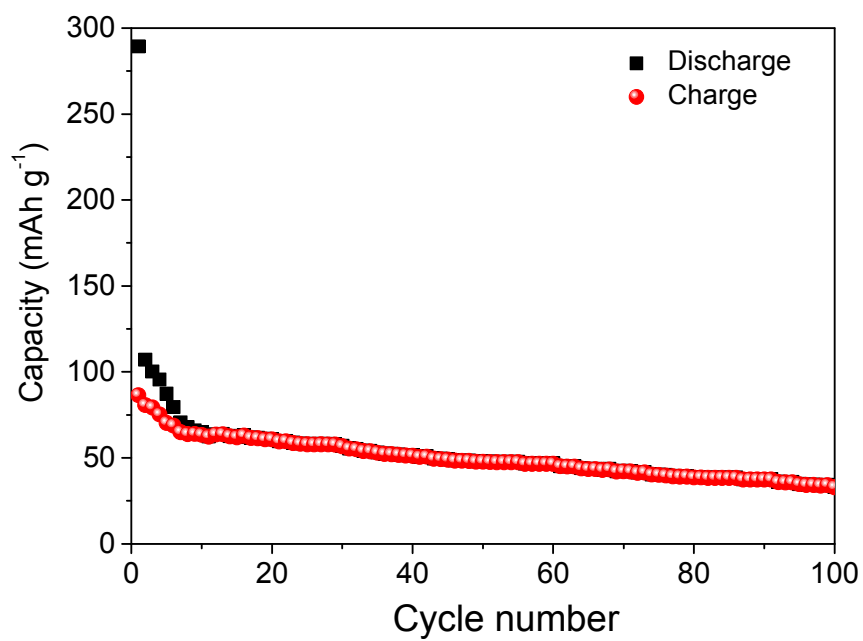


Figure S12. The cycling stability of the mechanically mixed Nb₂O₅ and rGO.