Electronic Supplementary Material (ESI) for Energy and Environmental Science

Supporting Information for

"Ultralong single crystalline V_2O_5 nanowires / graphene composite fabricated by a facile green approach and its lithium storage behavior"

Haimei Liu, Wensheng Yang

State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, China

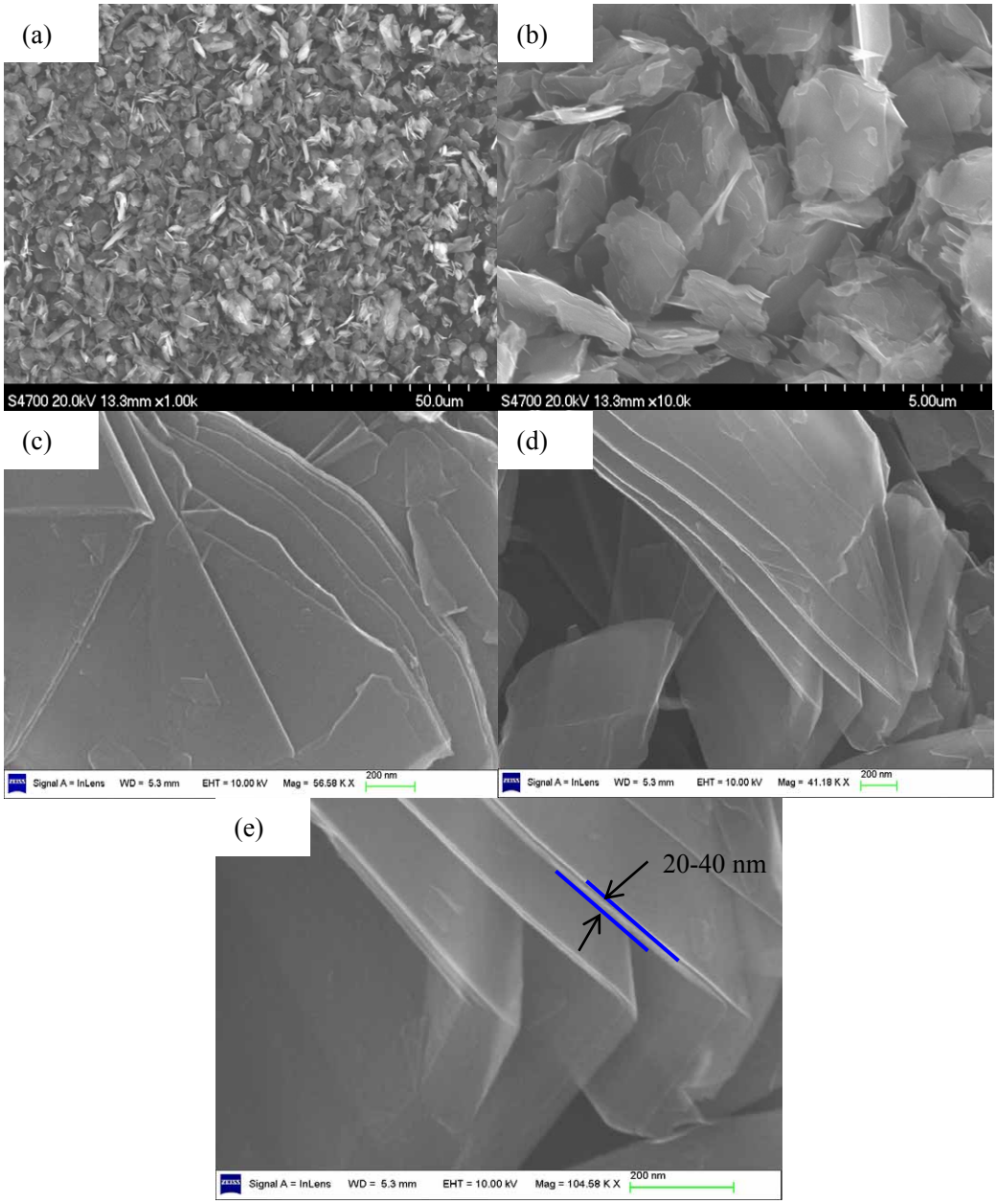

Figure S1: SEM images of pristine graphite flakes (a, b) and after ultrasonic treatment (c, d, e).

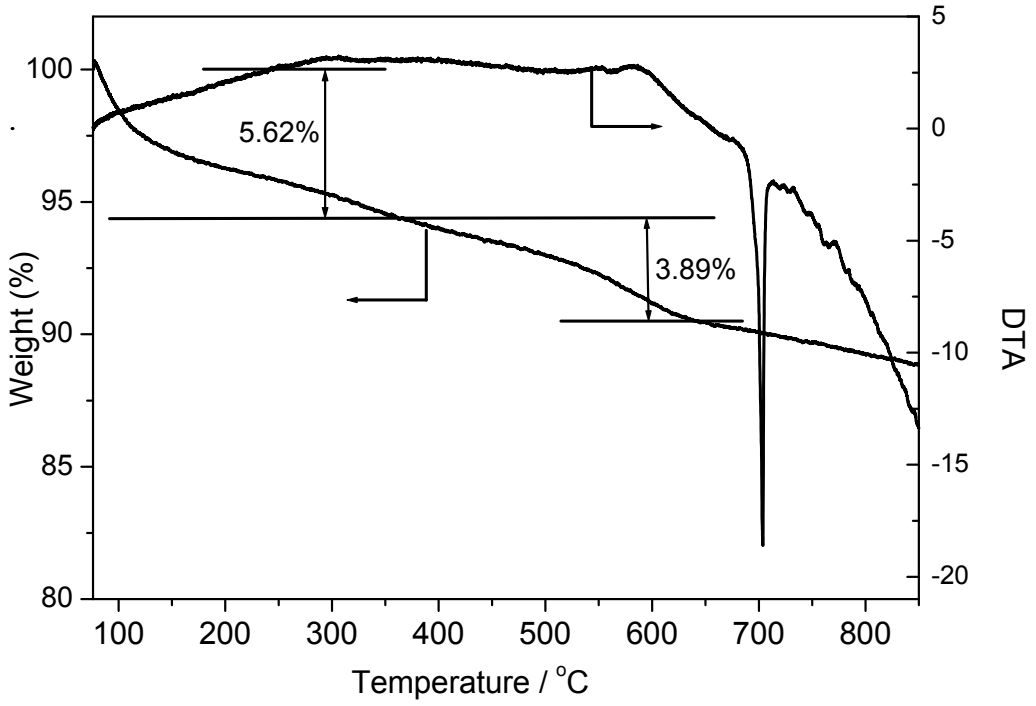

Figure S2: TG-DTA curves of composite material. The weight loss before 350 ^{o}C is ascribed to the physorbed or chemisorbed water molecular, and the weight loss before 650^{o}C is ascribed to the burning of GNS. At around 700^{o}C, the V_2O_5 is melted.

Figure S3: Photograph of as-prepared papery sheets of V_2O_5 nanowires / GNS composite.

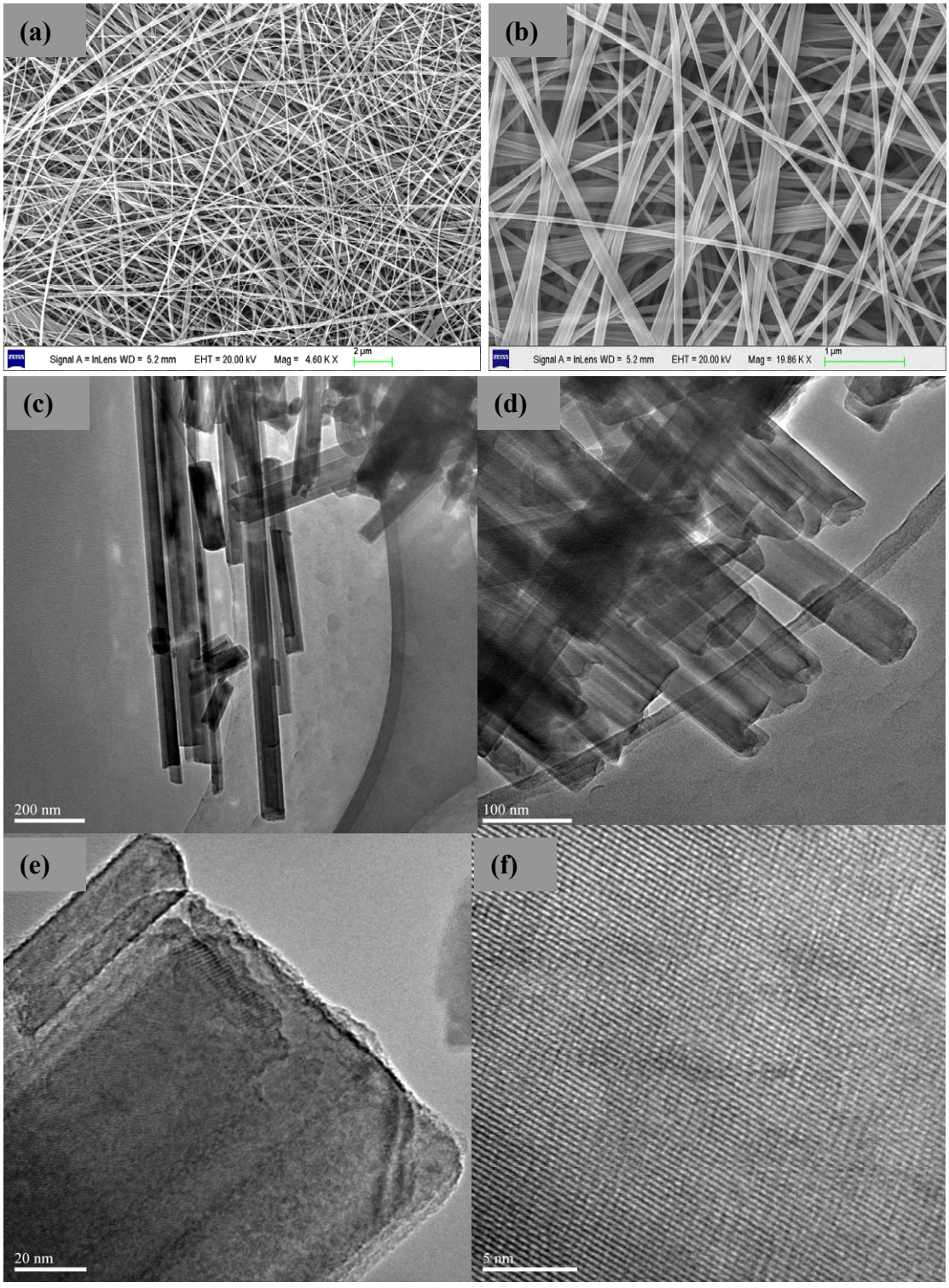

Figure S4: SEM and TEM images of controlled pure V_2O_5 nanowires.

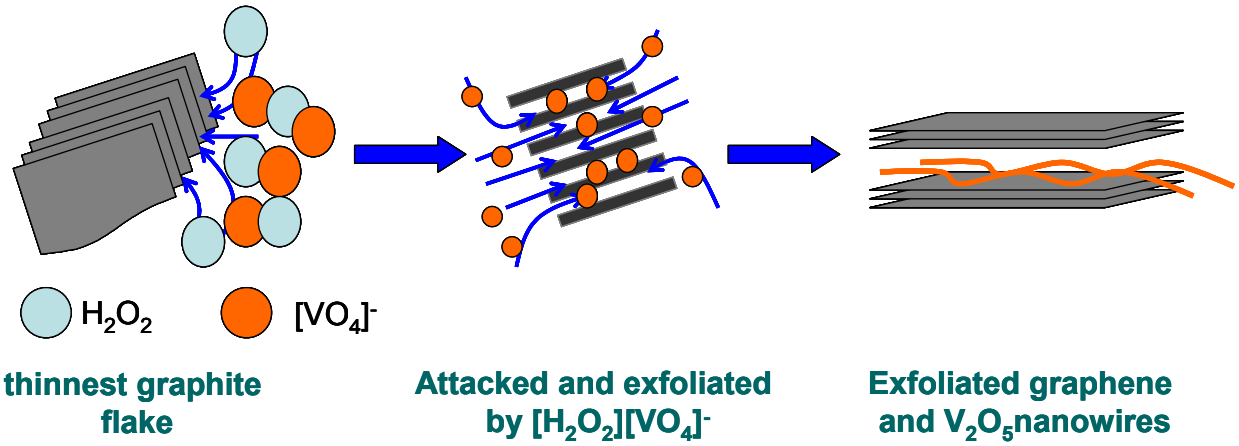

Figure S5: A proposed exfoliation process of graphite flake under hydrothermal condition in this work.

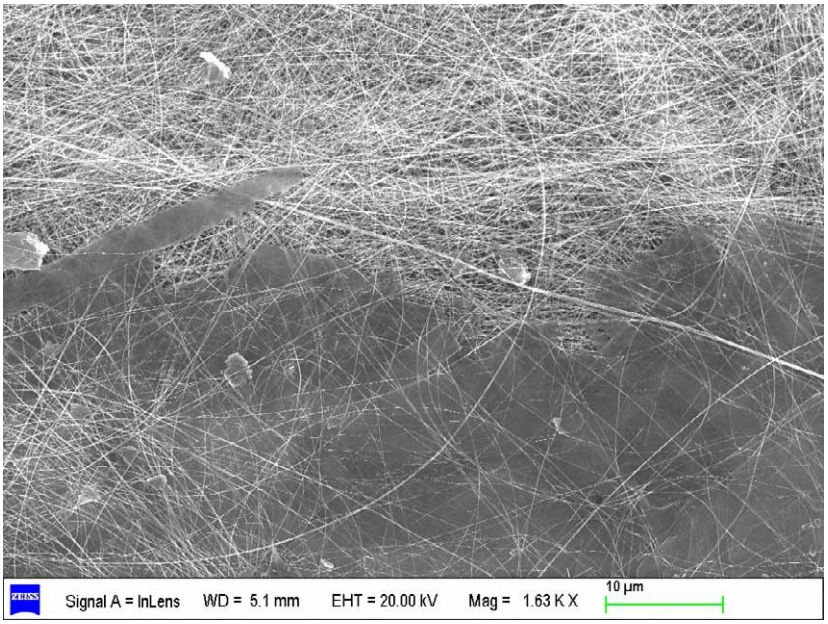

Figure S6: A large-scaled SEM image of V_2O_5 nanowires / GNS composite.

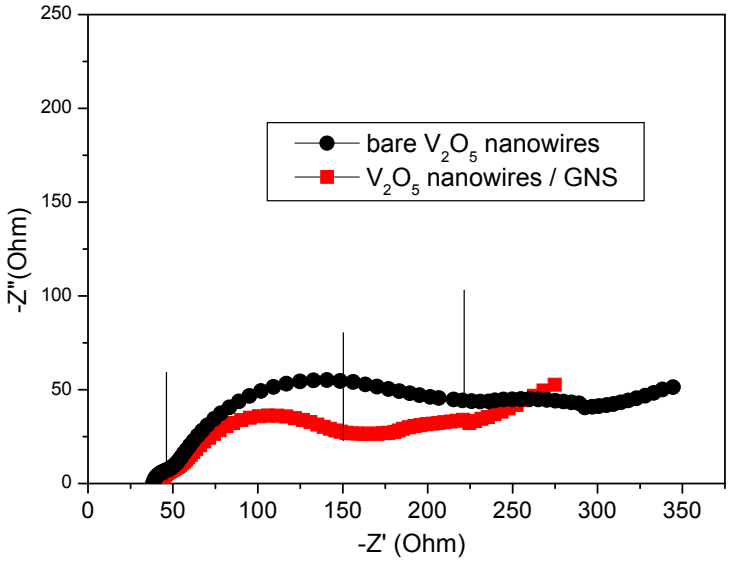

Figure S7: Impedance plot of V_2O_5 nanowires/GNS electrode and bare V_2O_5 nanowires electrode. It can be found from the Nyquist plot that the diameter of the semicircle for V_2O_5/GNS composite electrode in the medium-frequency region was much smaller than that of bare V_2O_5 electrode, thus suggesting that V_2O_5/GNS electrode possess lower contact and charge-transfer resistance (Rct) than that of the bare V_2O_5 nanowires electrode.

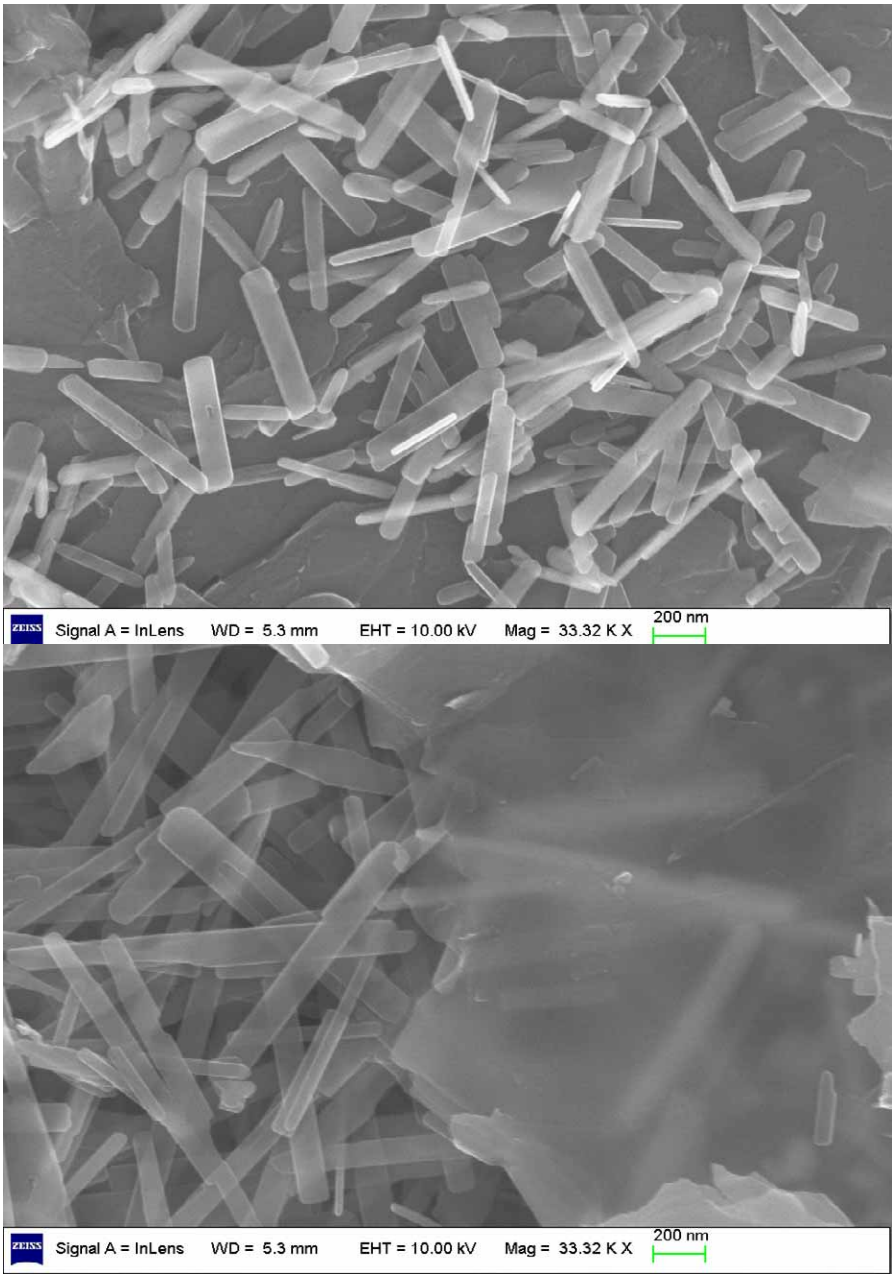

Figure S8: SEM images of a VO_2 (B) nanorods / GNS composite fabricated by a similar preparation route.