Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Vertically Aligned VO_2(B) Nanobelt Forest and Its Three-Dimensional Structure on Oriented Graphene for Energy Storage

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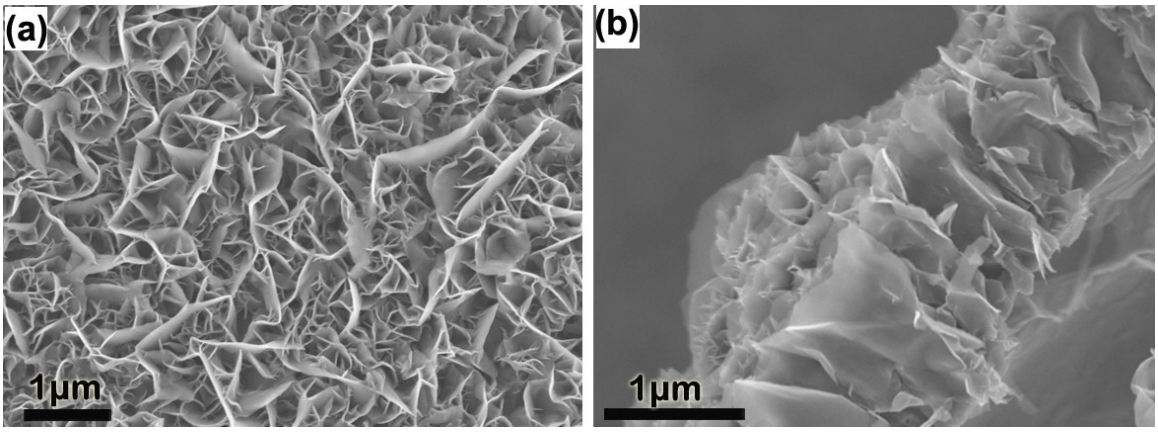

Figure S1. (a) Top view SEM image of VOG reveals a maze-like structure. (b) Side view SEM image of VOG indicates the vertical growth of the VOG flakes.

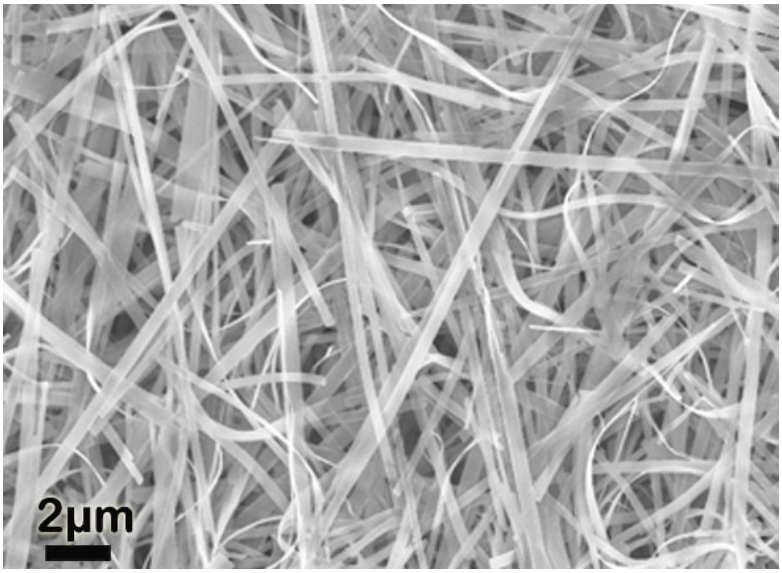

Figure S2. SEM image of the randomly oriented VO_2(B) NBs grown on a substrate without VOG reveals the critical role of VOG in the vertically-oriented growth of VO_2(B) NBs.

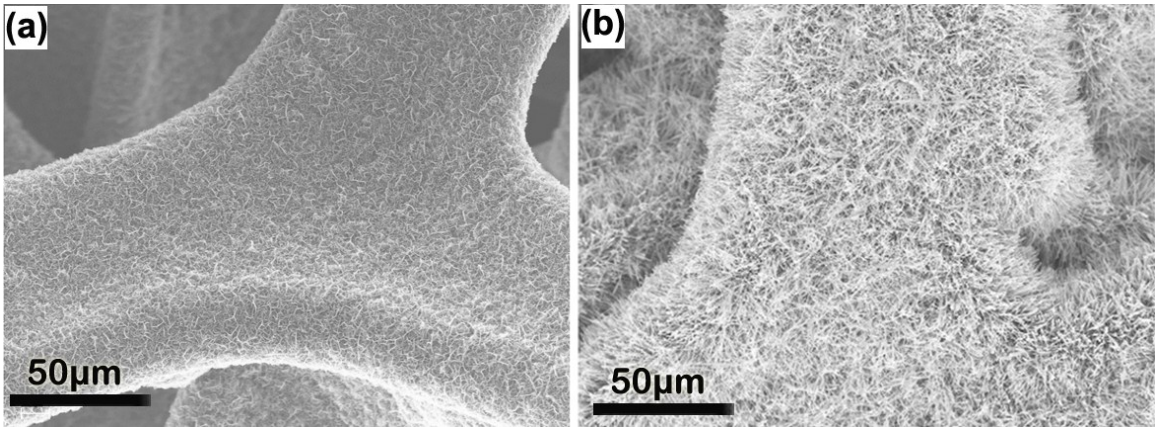

Figure S3. (a) SEM image of EOG encircling the nickel skeleton in a radial mode. EOG uniformly covers the entire Ni foam. (b) SEM image of 3D VO_2(B) NB forest on the EOG/Ni foam template. VO_2(B) NB forest uniformly covers the entire EOG/Ni foam.

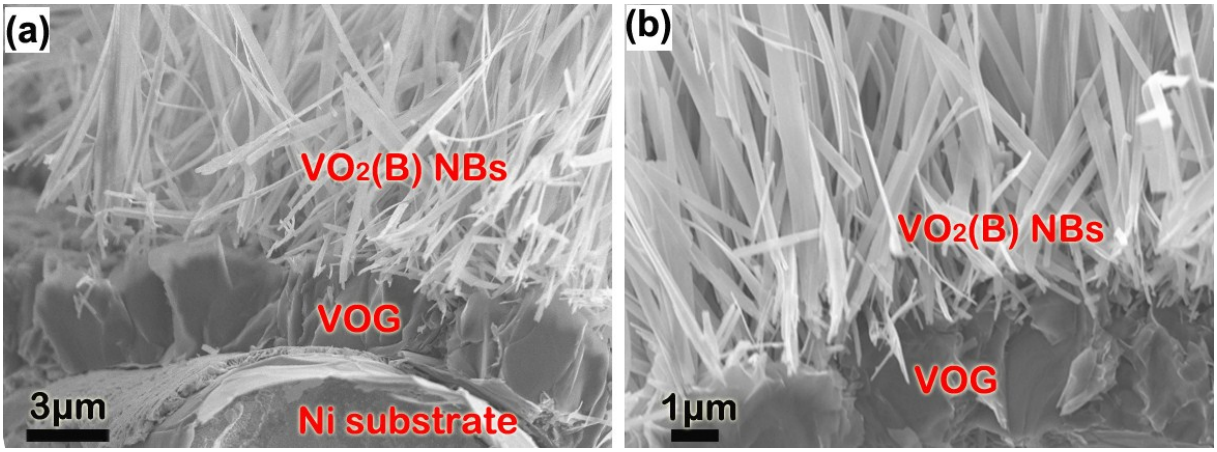

Figure S4. (a, b) Cross-sectional SEM images of 3D VO_2(B) NB forest indicate close contacts between VOG and VO_2(B) NBs as well as VOG and Ni substrate.

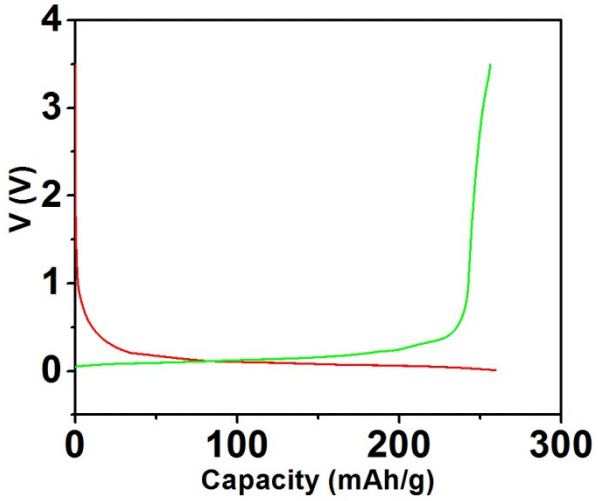

Figure S5. C-D curves of LIB based on EOG/Ni foam at the lowest current of 0.03 mA reveal that the lithium ion storage capacity of EOG/Ni foam only occurs at a potential much lower than 1 V.

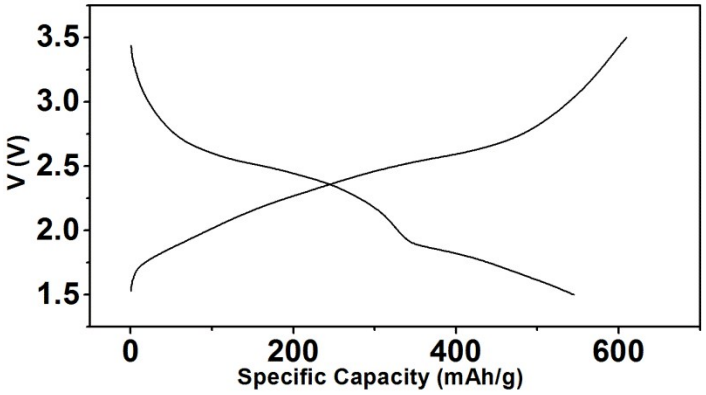

Figure S6. C-D curves of LIB based on 3D VO_2(B) NB forest at a current density of 0.03 A g^{-1} used to activate the battery. The first C-D cycle shows a large charge capacity of 600 mAh g^{-1} and a discharge capacity of 550 mAh g^{-1}, and exhibits irreversible capacity of 50 mAh g^{-1} with a coulombic efficiency of 92%.