

**Rational design of TiO<sub>2</sub>-V<sub>2</sub>O<sub>5</sub> -C nanostructure grafted by N-doped  
graphene with enhanced photocatalysis and lithium ion store  
performances**

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**Directory of contents**

**Fig S1.** Magnified XRD patterns of the sample GN-TV-C

**Fig S2.** N<sub>2</sub> adsorption and desorption isotherm (A) and pore size distribution GN-TV-C(B)

**Fig S3.** Charge/discharge curves CV curves of the composite GN-TV-C with different amounts of V<sub>2</sub>O<sub>5</sub>

**Fig S4.** The TEM image of GN-TV-C after 1000<sup>th</sup> cycles.

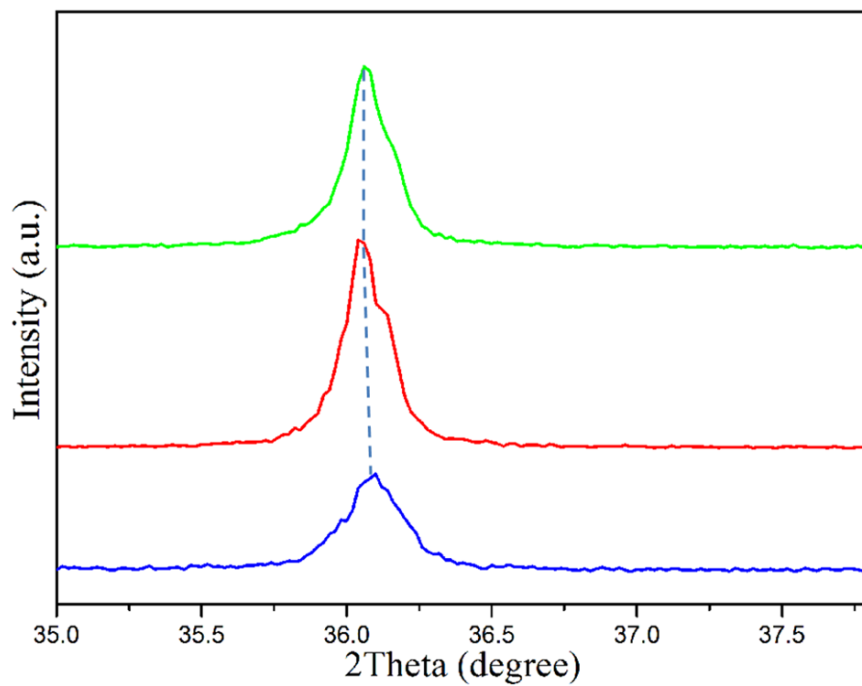


Fig S1. Magnified XRD patterns of the sample GN-TV-C

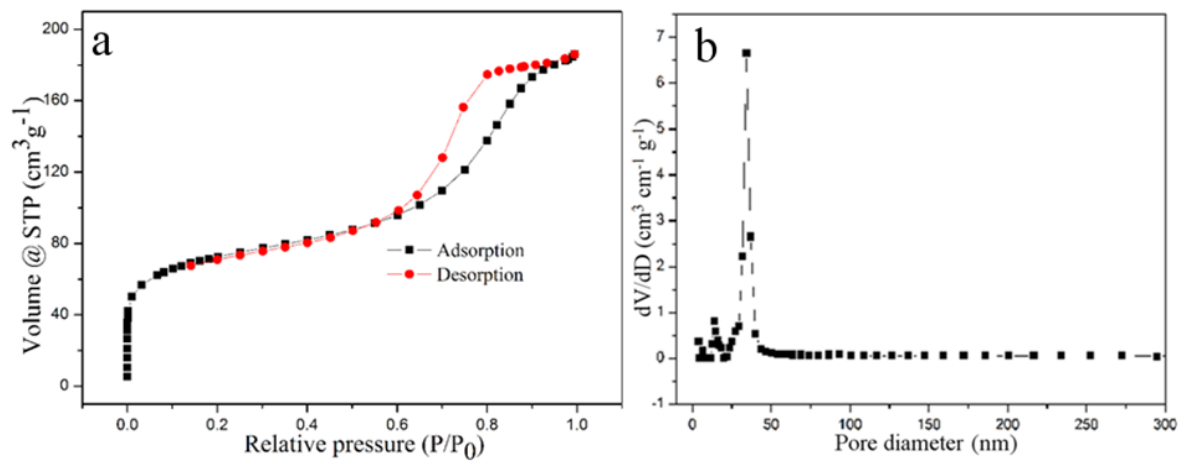
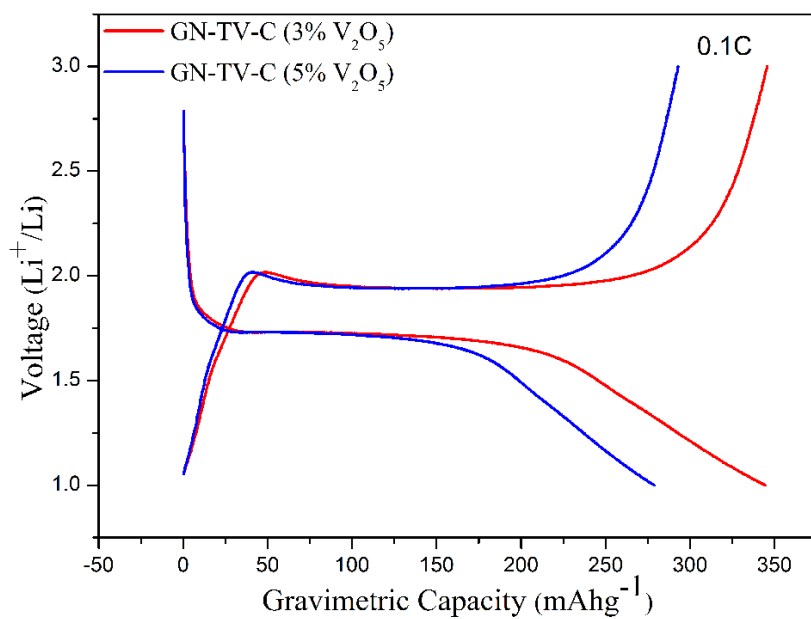
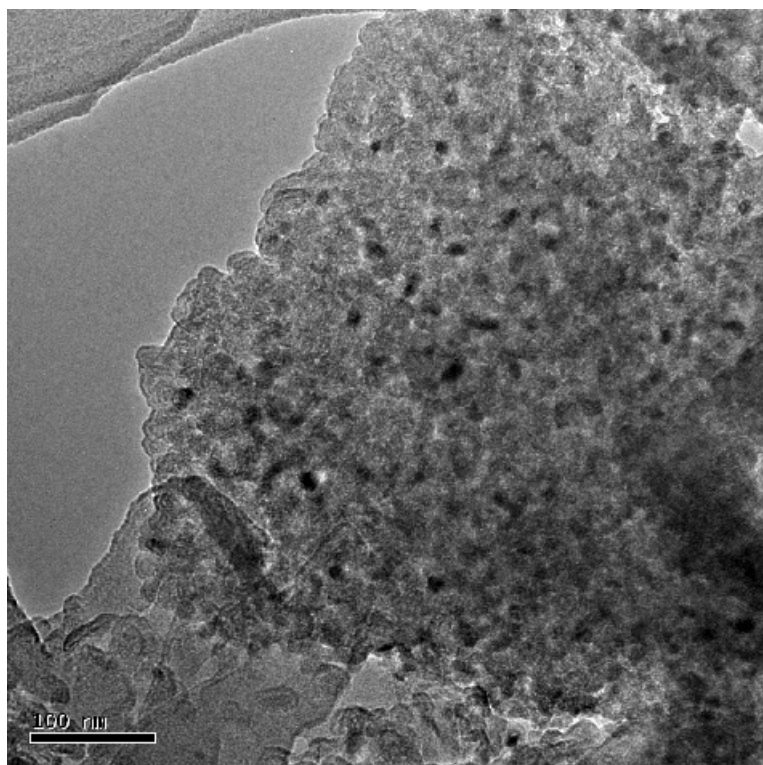


Fig S2.  $N_2$  adsorption and desorption isotherm (a) and pore size distribution GN-TV-C(b)



**Fig S3.** Charge/discharge curves CV curves of the composite GN-TV-C with different amounts of  $V_2O_5$



**Fig S4.**The TEM image of GN-TV-C after 1000<sup>th</sup> cycles.