

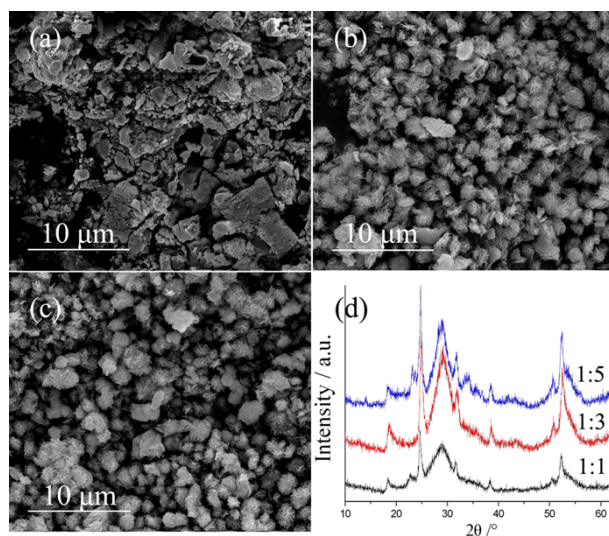
### Supporting Information

## **Facile preparation of hierarchical Nb<sub>2</sub>O<sub>5</sub> microspheres with photocatalytic activities and electrochemical properties**

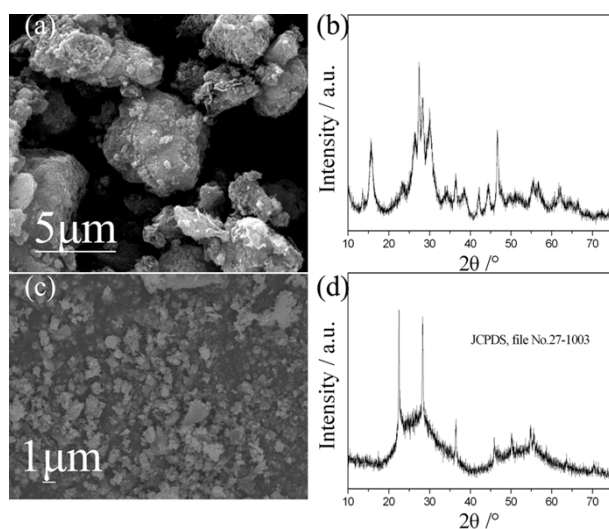
Sheng-qi Guo,<sup>†</sup> Xiao Zhang,<sup>†</sup> Zhen Zhou,<sup>\*,‡</sup> Guan-dao Gao,<sup>\*,†</sup> Lu Liu<sup>\*,†</sup>

<sup>†</sup> *Tianjin Key Laboratory of Environmental Remediation and Pollution Control, Nankai University, Tianjin 300071, China.*

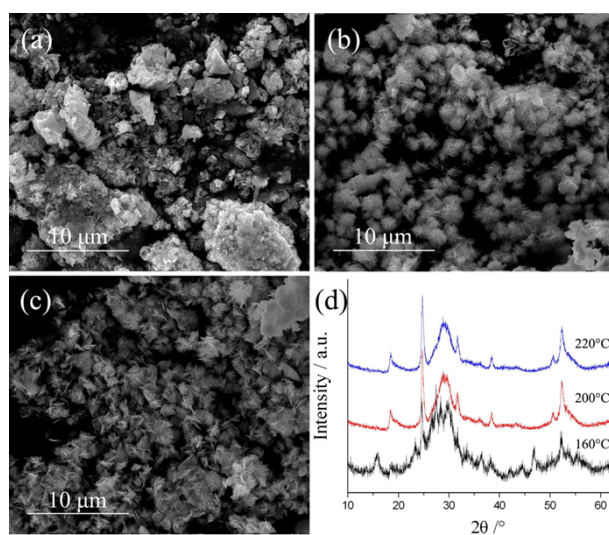
<sup>‡</sup> *Institute of New Energy Material Chemistry, Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Nankai University, Tianjin, 300071, China.*



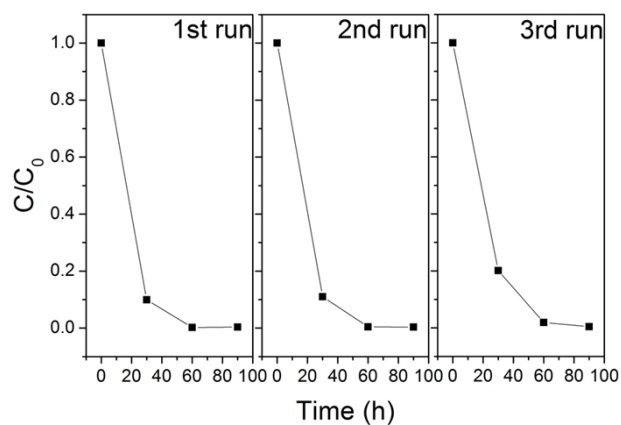
**Figure S1.** SEM images of samples synthesized with different molar ratio of Nb<sub>2</sub>O<sub>5</sub> to Hexamethylenetetramine: (a) 1:1, (b) 1:3, (c) 1:5 and (d) XRD patterns of the as-prepared Nb<sub>2</sub>O<sub>5</sub> products.



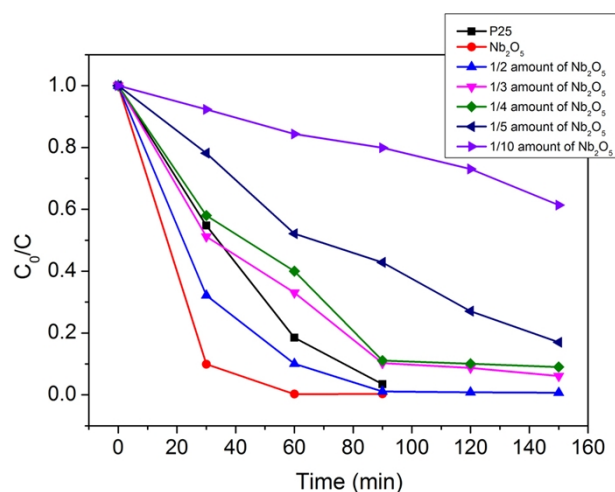
**Figure S2.** SEM images and XRD of samples synthesized by NaOH as alkaline sources (a) and (b); SEM images and XRD of samples synthesized by  $\text{Na}_2\text{CO}_3$  as alkaline sources (c) and (d).



**Figure S3.** SEM images of the samples synthesized for (a) 160°C, (b) 200°C, (c) 220°C, and (d) XRD patterns of the as-prepared  $\text{Nb}_2\text{O}_5$  products.



**Figure S4.** Cycling runs in the photocatalytic degradation of RhB by as-prepared  $\text{Nb}_2\text{O}_5$  products



**Figure S5.** The photodegradation efficiencies of RhB as a function of irradiation time in different catalysts.”

Element	Value
Rs	3.641
CPE1-T	2.6052E-05
CPE1-P	0.77544
Rct	197.2
Wo-R	142.6
Wo-T	16.71
Wo-P	0.17841
Chi-Squared: 0.00040429 Weighted Sum of Squares: 0.0084901 Mode: Run Fitting / Freq. Range (0.001 - 1000000) Maximum Iterations: 100 Optimization Iterations: 0 Type of Fitting: Complex Type of Weighting: Calc-Modulus	

**Table S1.** Simulated EIS Resistance and Capacitance Values.