

Electronic Supplementary Information

Hierarchical Ordered Macro/mesoporous Titania with Highly Interconnected Porous Structure for Efficient Photocatalysis

Tao Zhao^a, Yuan Ren^b, Jianping Yang^a, Lianjun Wang^a, Wan Jiang^a, Ahmed A. Elzatahry^e, Abdulaziz Alghamdi^f, Yonghui Deng^{b,d}, Dongyuan Zhao^b, Wei Luo^{a,c,*}

^aState Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, P. R. China.

^bDepartment of Chemistry, State Key Laboratory of Molecular Engineering of Polymers, iChEM, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, Fudan University, Shanghai 200433, P. R. China.

^cState Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, P. R. China

^dState Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, P. R. China

^eMaterials Science and Technology Program, College of Arts and Sciences, Qatar University, PO Box 2713, Doha, Qatar

^fDepartment of Chemistry, College of Science, King Saud University, Riyadh 11451, Saudi Arabia

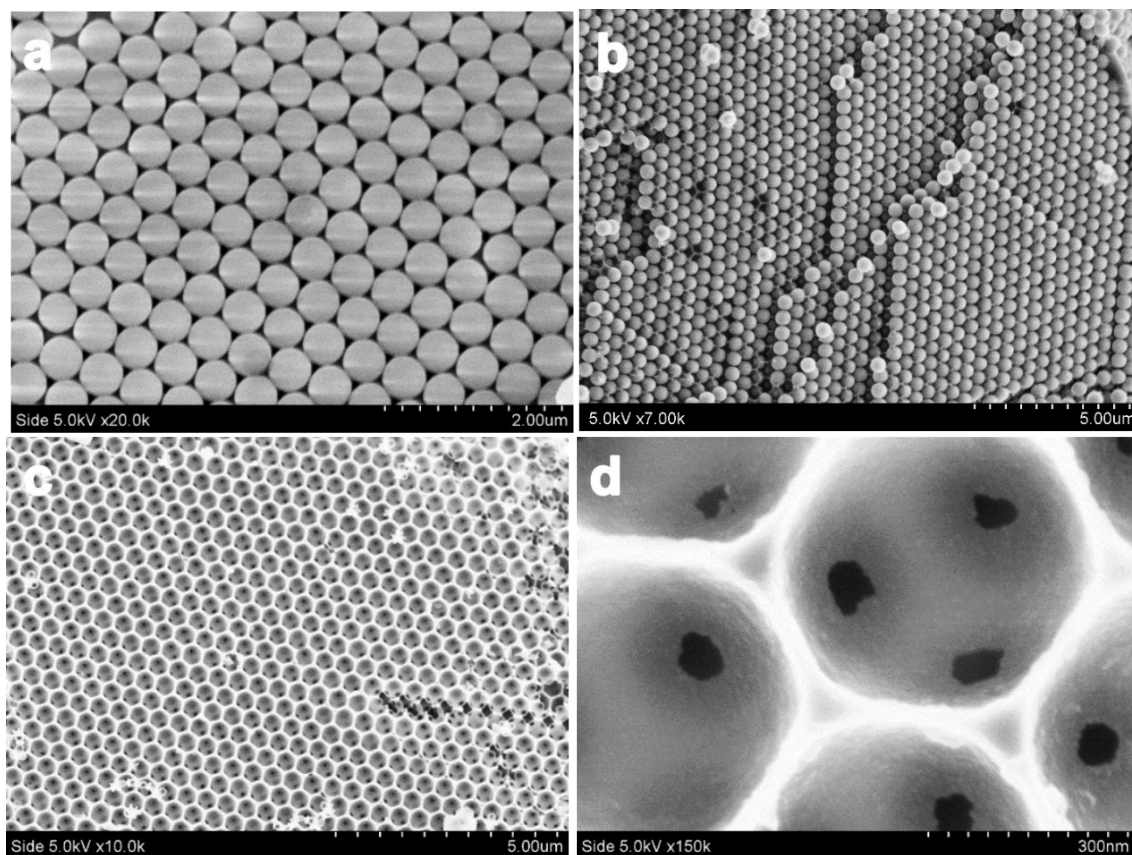


Figure S1. SEM images of (a) SiO_2 colloidal crystal arrays using uniform silica spheres of ~ 480 nm, (b) SiO_2 colloidal crystal impregnated with phenolic resin, (c) the 3-D ordered macroporous carbon (3DOMC) obtained after HF etching, (d) the corresponding magnified FESEM image of c.

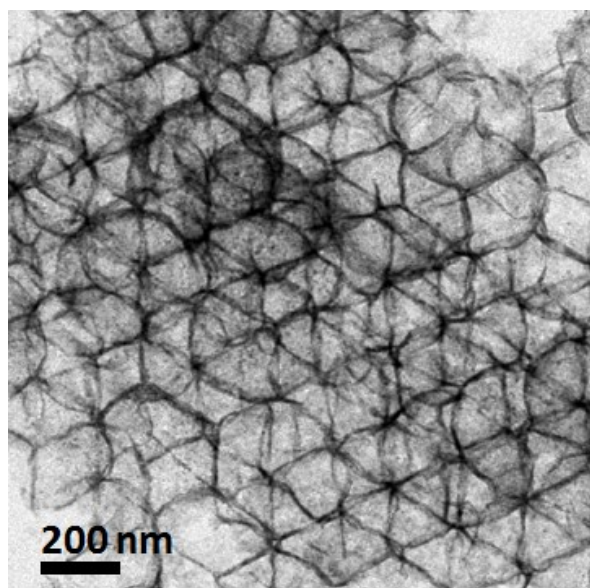


Figure S2. TEM image of HOPT viewed along the (111) plane

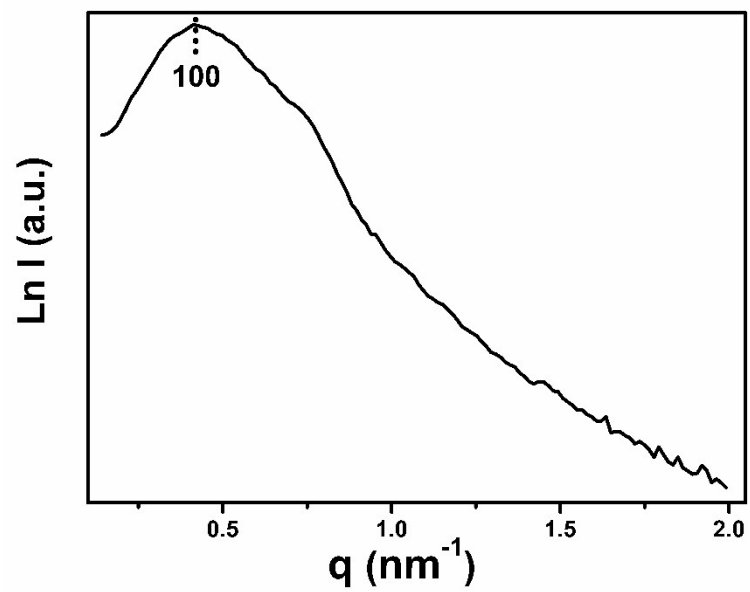


Figure S3. SAXS pattern of the HOPT, indicating an ordered mesosturcutre.

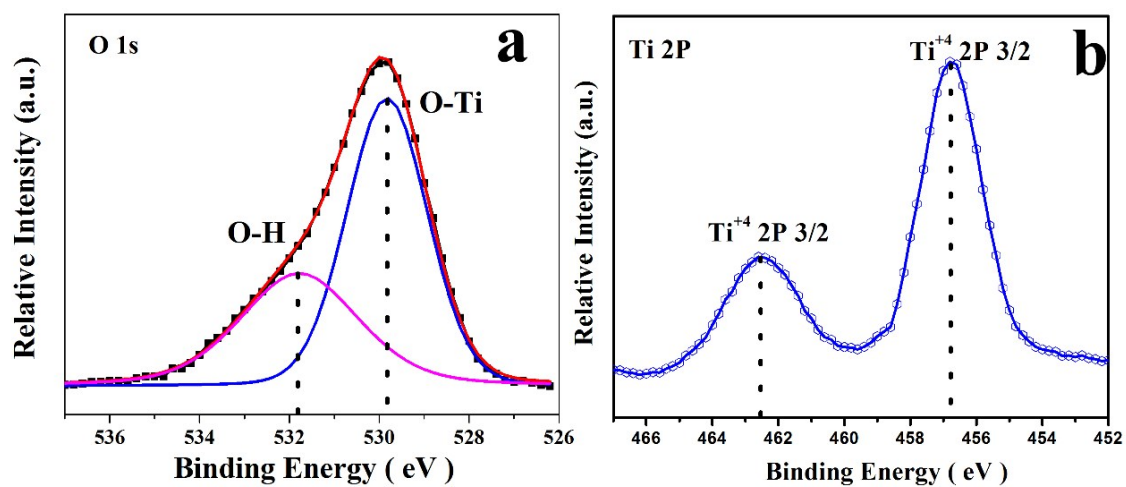


Figure S4. XPS core-level spectra of O1s (a) and Ti2p (b) for the HOPT.

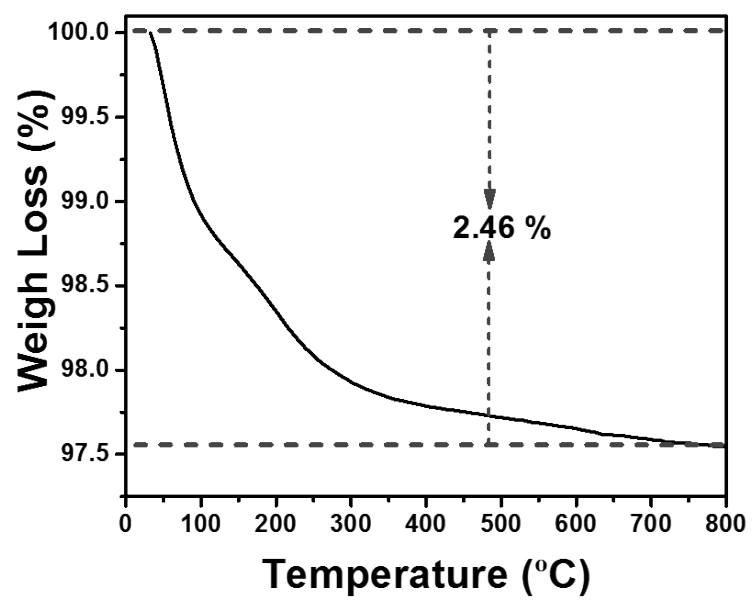


Figure S5. TGA curve of the HOPT materials

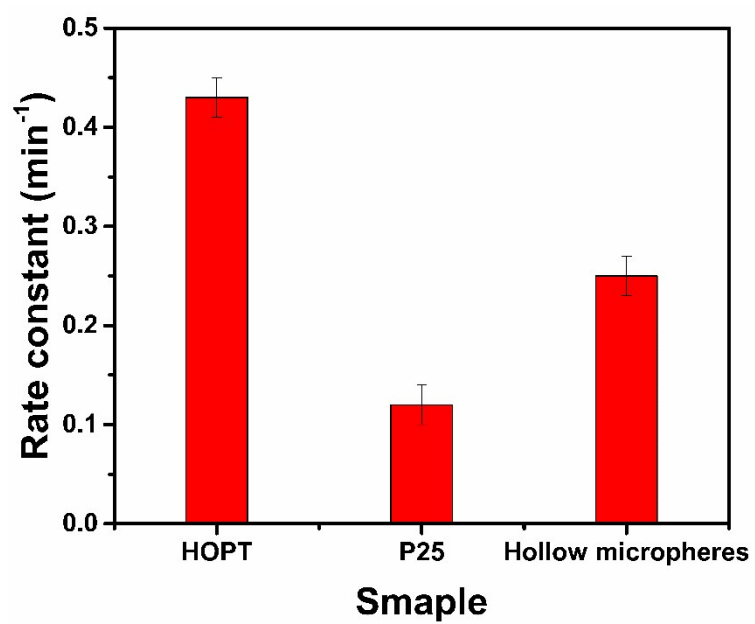


Figure S6. Comparison of the photocatalytic activity of HOPT, P25 and TiO₂ hollow microspheres samples for the photocatalytic degradation of RhB in aqueous solutions.

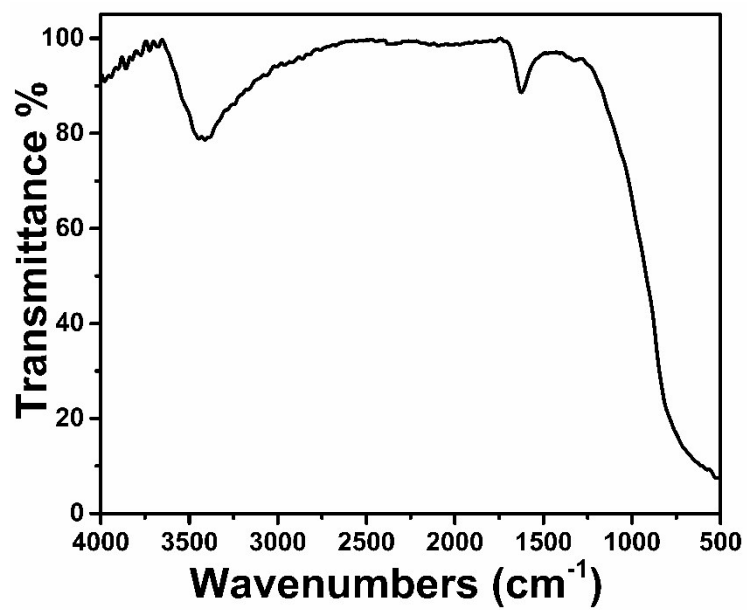


Figure S7. The *in-situ* Fourier transform infrared spectroscopy analysis of HOPT after photocatalysis. It indicates that no organic species were retained in the photocatalysts after catalysis.



Figure S8. The photo image of the HOPT after photocatalysis. It indicates that the recycled HOPT is the same with the pristine sample in appearance, indicating a complete degradation of RhB solutions.

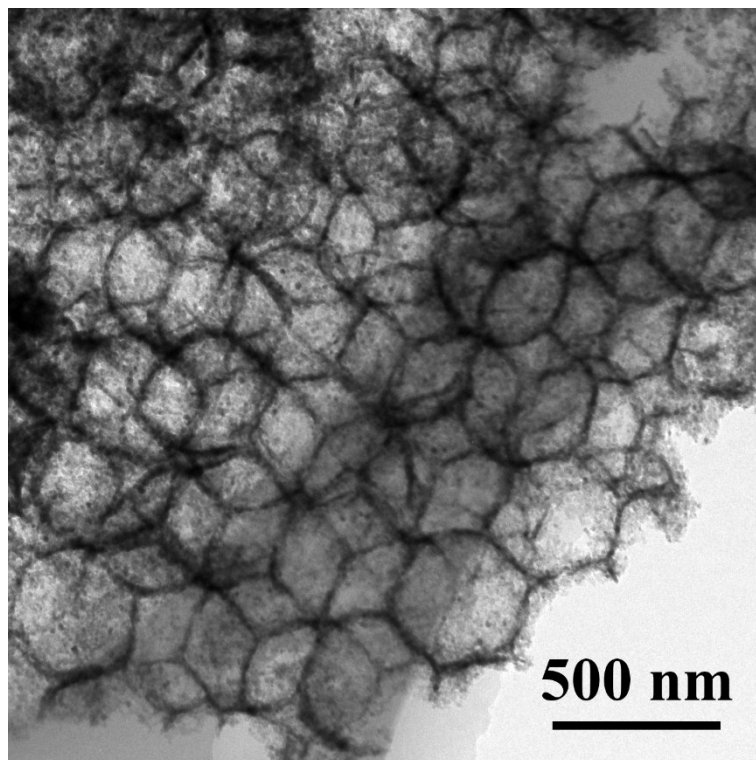


Figure S9. TEM image of HOPT after degradation of RhB.

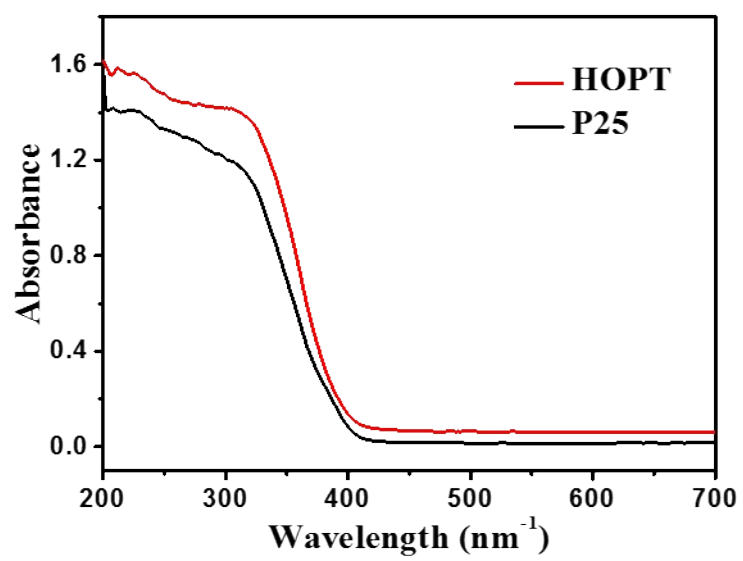


Figure S10. The UV-vis absorption spectra of HOPT and P25