Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Designed fabrication of anatase mesocrystals constructed from crystallographically oriented nanoparticles for improved photocatalytic activity

X. X. Fu, Z. M. Ren, C. Y. Fan, L. Shi, S. Q. Yu, G. D. Qian and Z. Y. Wang*[a]

[a] State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering, Zhejiang University, Hangzhou, China.

*To whom correspondence should be addressed. E-mail: wangzhiyu@zju.edu.cn

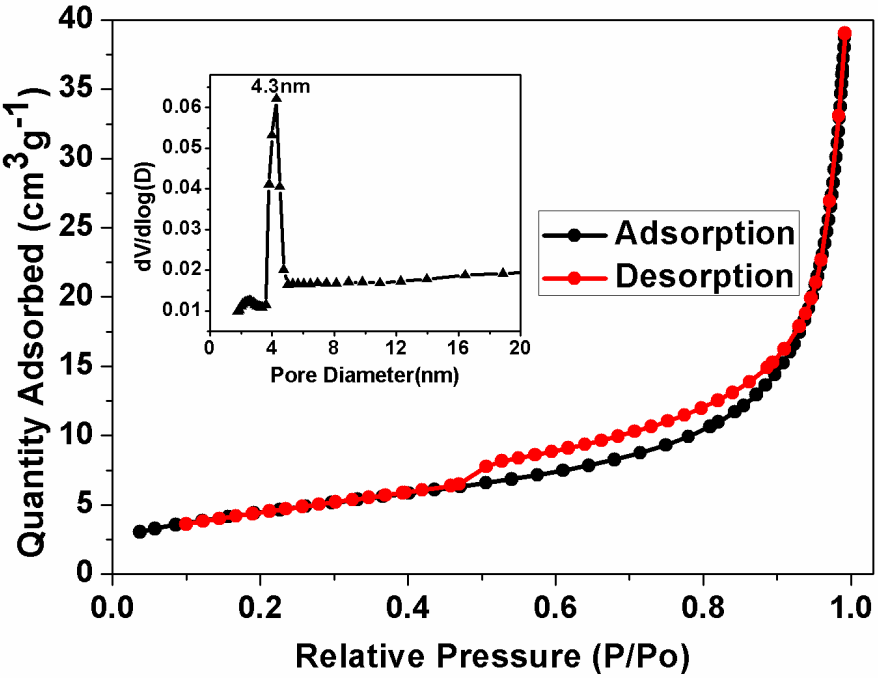

Fig. S1 The N_2 adsorption-desorption isotherms of PCs obtained under the reaction time of 1 hour. PCs shows a type of IV isotherm with a broad hysteresis loop, which is characteristic of mesoporous materials. The specific surface area is 32.18 m^2 g^{-1}.

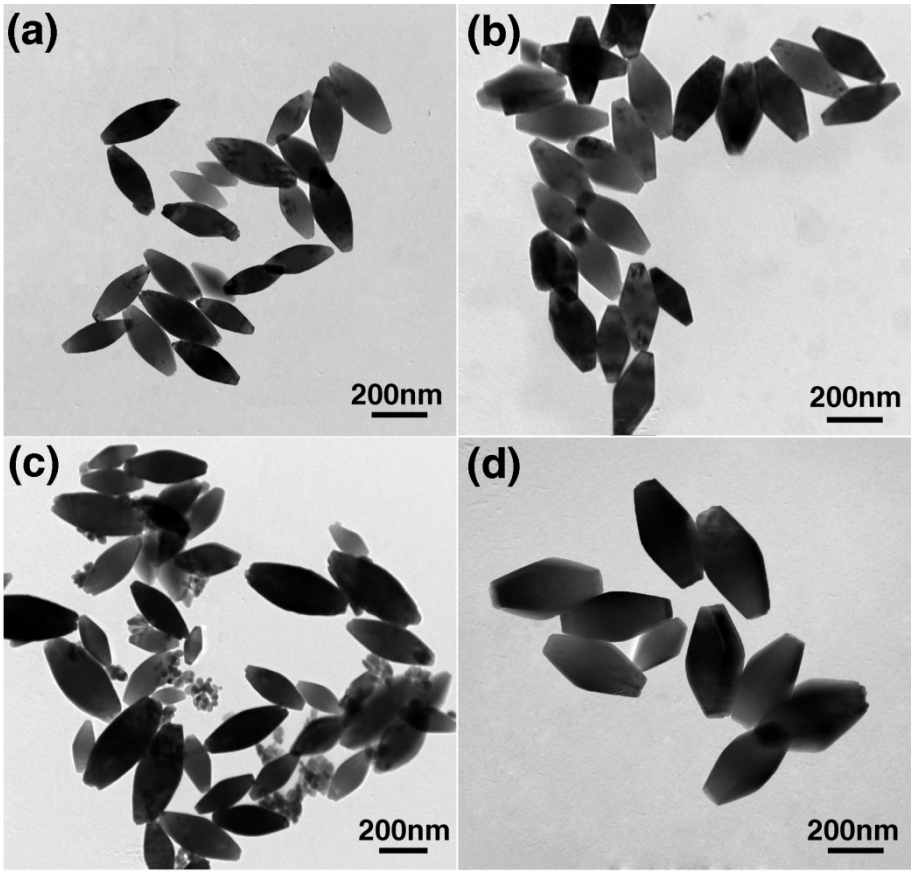

Fig. S2 The shape evolution of SCs-2 under different reaction time. (a) 1 h (b) 2 h (c) 4 h (d) 8 h.

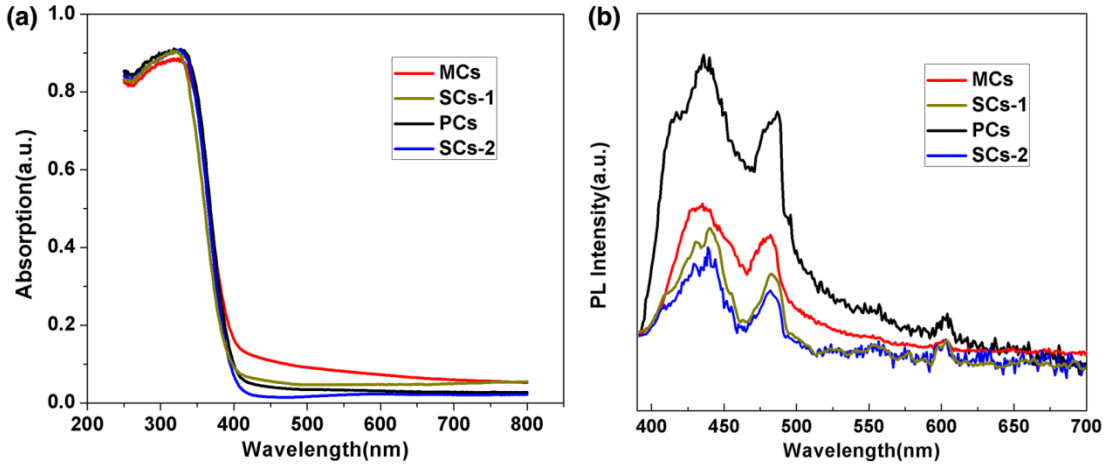

Fig. S3 (a) Diffuse reflectance spectra and (b) Photoluminescent (PL) spectra of SCs, MCs and PCs. The excited wavelength was 330 nm in the PL measurement and the intensity is related to the recombination rate of e^- /h^+ pairs. MCs exhibits the lowest intensity and PCs is the highest, indicating that the order of electron-hole recombination rate in these TiO_2 products is PCs > MCs > SCs. Normally, low recombination rate of electrons and holes favors for high photocatalytic activity.