

Hydrothermal synthesis of SAPO-5 with novel morphologies from hydrogels containing acetic acid and high concentration of triethylamine under neutral or alkaline conditions

Ming Li,^{a,c} Changfeng Zeng,^b Lixiong Zhang^{a*}

^a State Key Laboratory of Materials-oriented Chemical Engineering, College of Chemistry and Chemical Engineering, Nanjing University of Technology, Nanjing, China.

^b College of Mechanic and Power Engineering, Nanjing University of Technology, No 5 Xin Mofan Rd., Nanjing 210009, China.

^c Geological Survey of Jiangsu Province, No 700 Zhujiang Rd, Nanjing, China.

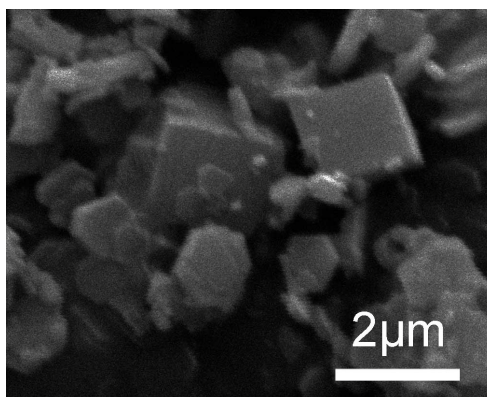


Fig. S1 SEM images of sample A3 synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: 2HAc: $250\text{H}_2\text{O}$ at $180\text{ }^\circ\text{C}$ for 48 h.

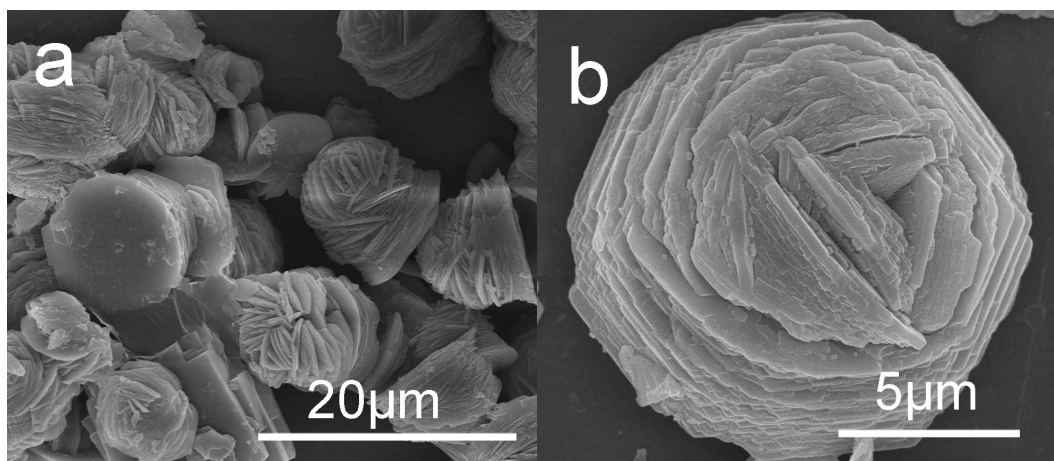


Fig. S2 SEM images of sample A3 synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: 5HAc: $250\text{H}_2\text{O}$ at $180\text{ }^\circ\text{C}$ for 48 h. (a) General view; (b) Magnification of a crystal.

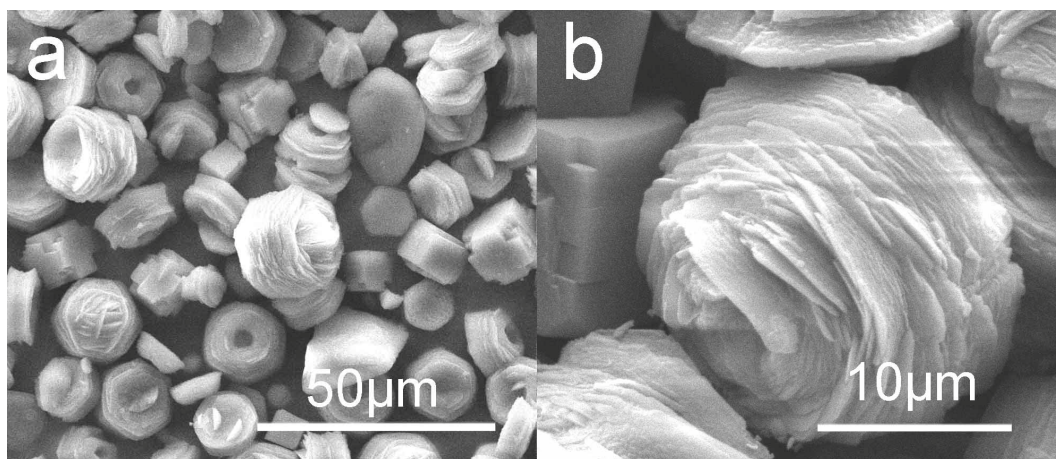


Fig. S3 SEM images of sample A4 synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: 10HAc: $250\text{H}_2\text{O}$ at 180°C for 48 h. (a) General view; (b) Magnification of a crystal.

5

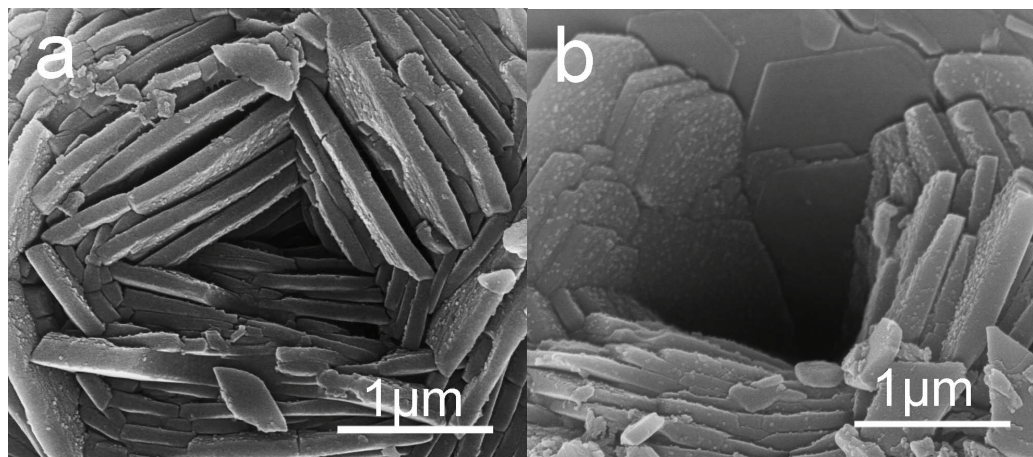
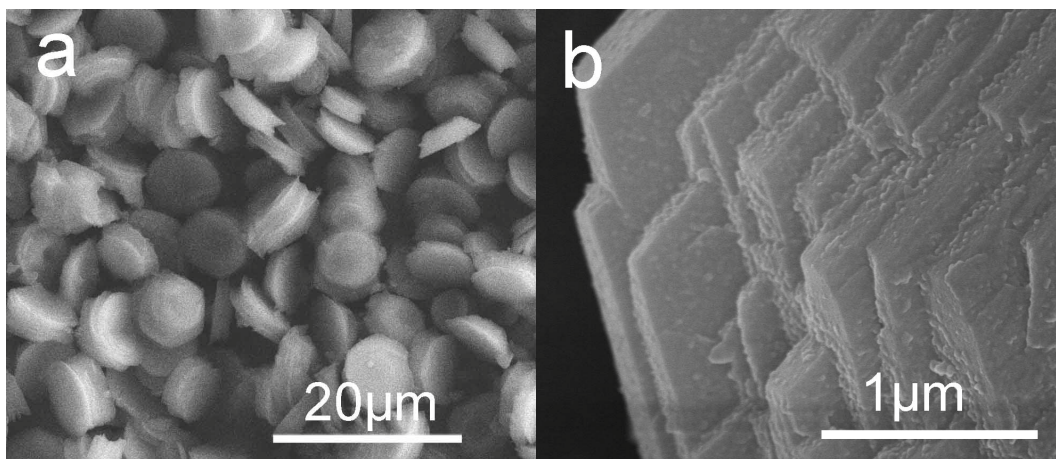


Fig. S4 SEM images of samples A3 and A4 at the top view



10

Fig. S5 SEM images of sample A5 synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: 14HAc: $250\text{H}_2\text{O}$ at 180°C for 48 h. (a) General view; (b) Magnification of a

crystal.

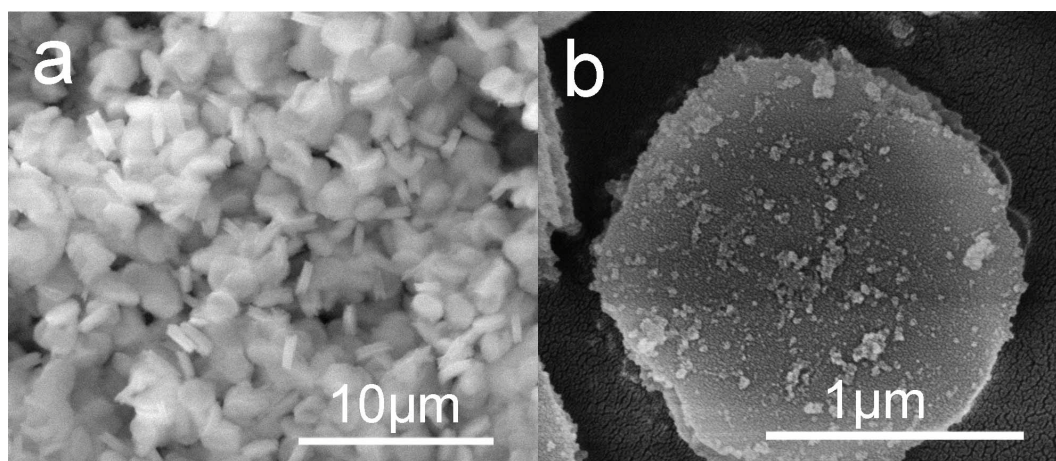


Fig. S6 SEM images of sample A6 synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: 17HAc: $250\text{H}_2\text{O}$ at 180°C for 48 h. (a) General view; (b) Magnification of a

crystal.

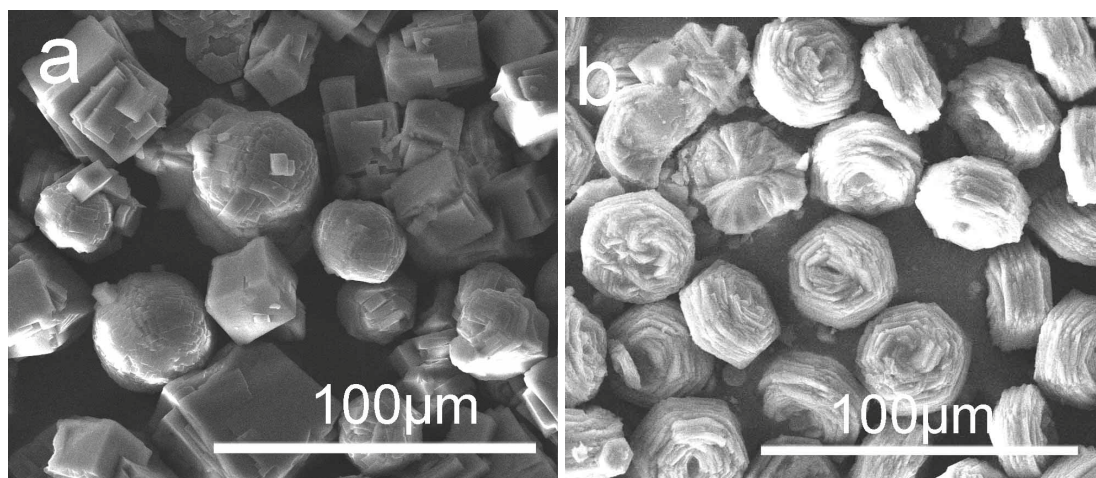


Fig. S7 SEM images of SAPO-5 crystals synthesized from hydrogels with molar compositions of Al_2O_3 : $1.1\text{P}_2\text{O}_5$: SiO_2 : 14TEA: $y\text{HCl}$: $250\text{H}_2\text{O}$ at 180°C for 48 h. $y = 1.5$ (a, sample C1) and 4.3 (b, sample C2).