Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Sub-5 μm Balls Possessing Forest-like Poly(methyloxazoline)/Polyethyleneimine Side Chains and Templated Silica Microballs with Unusual Internal Structures

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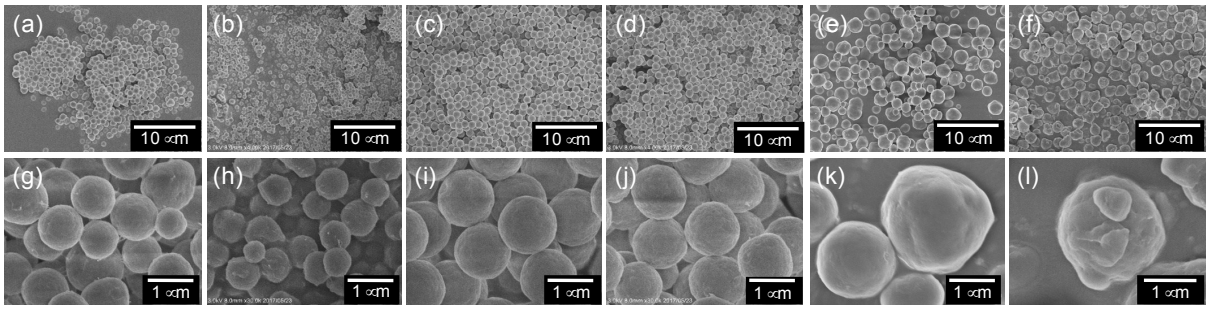


Figure S1. SEM images of μ-PStCl prepared from different stabilizers: (a,g) PVP K60 (M_w = 160,000); (b,h) PVP K90 (M_w = 600,000); (c,i) Hydroxypropyl cellulose3~5.9 (HPC3~5.9, M_w = 160,000); (d,j) HPC150~400 (M_w = 620,000); (e,k) Poly(2-ethyl-2-oxazoline) (PEOZ, M_w = 50,000); (f,l) PEOZ (M_w = 500,000).

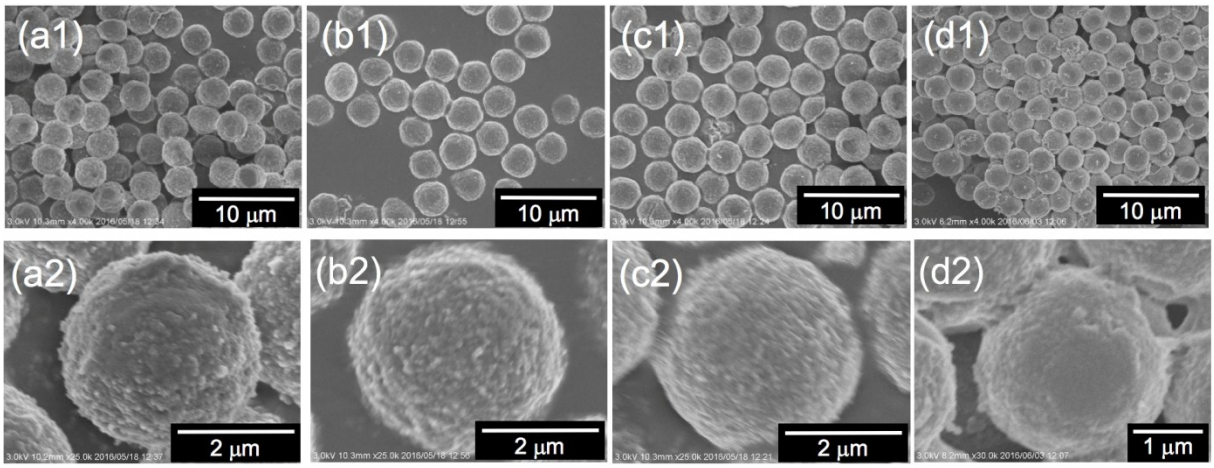


Figure S2. SEM images of the as-prepared microballs of μ-PSt-*g*-PEI@SiO_2 mediated from (a) water, (b) methanol, (c) ethanol and (d) acetone.

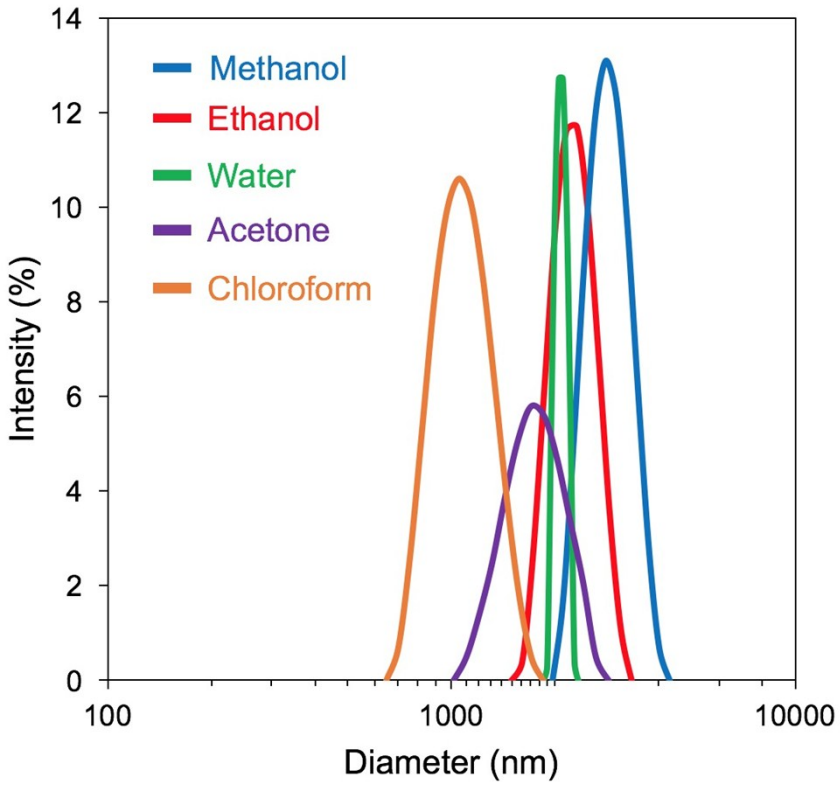
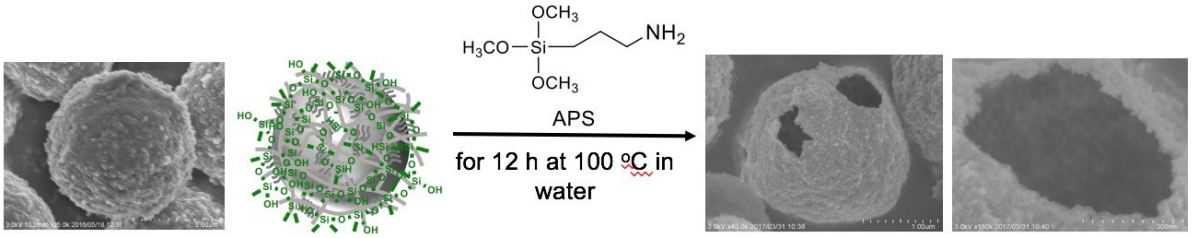


Figure S3. DLS curves of μ-PSt-*g*-PEI in different solvents

Scheme S1. Chemical etching of the silica microballs mediated from water



SiO_2

10 mL Flask

SiO_2 30 mg
(Calcined at 800 ºC)

Water 7.5 mL

APS 0.5 mL

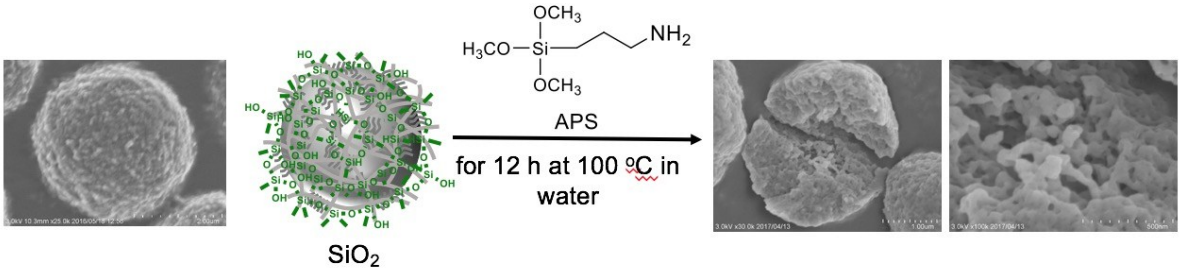
100 ºC 6 h

Centrifugation

Washing by acetone

White powders (subjected to SEM)

Scheme S2. Chemical etching of the silica microballs mediated from methanol



10 mL Flask

SiO_2 30 mg
(Calcined at 800 ºC)

Water 7.5 mL

APS 0.5 mL

70 ºC 12 h

Centrifugation

Washing by acetone

White powders (subjected to SEM)

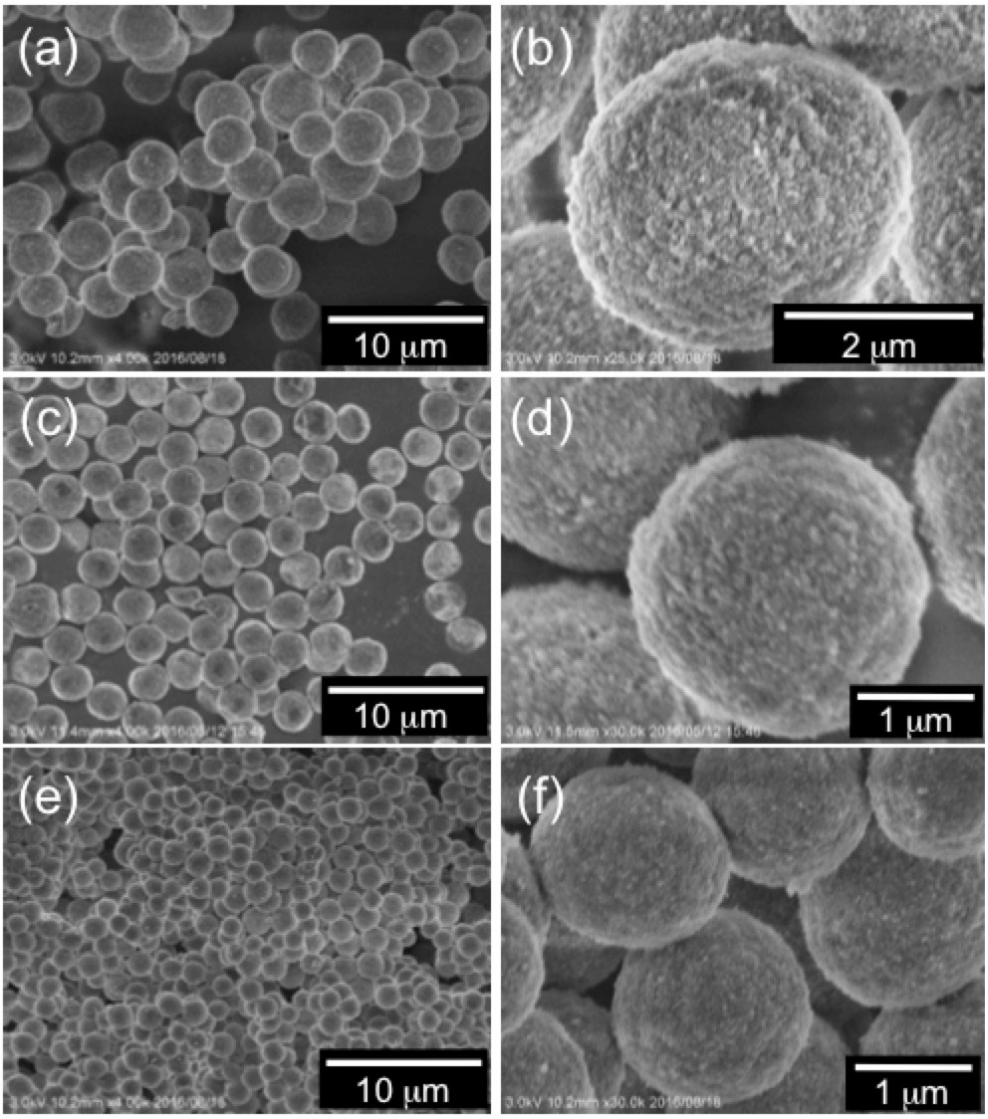


Figure S4. Influences of the calcination temperatures on the sizes of the silica microballs. Sample: μ-PSt-*g*-PEI@SiO_2 mediated from methanol. Calcination temperatures: 700 (a, b), 800 (c, d), and 900 ^{o}C (e, f).

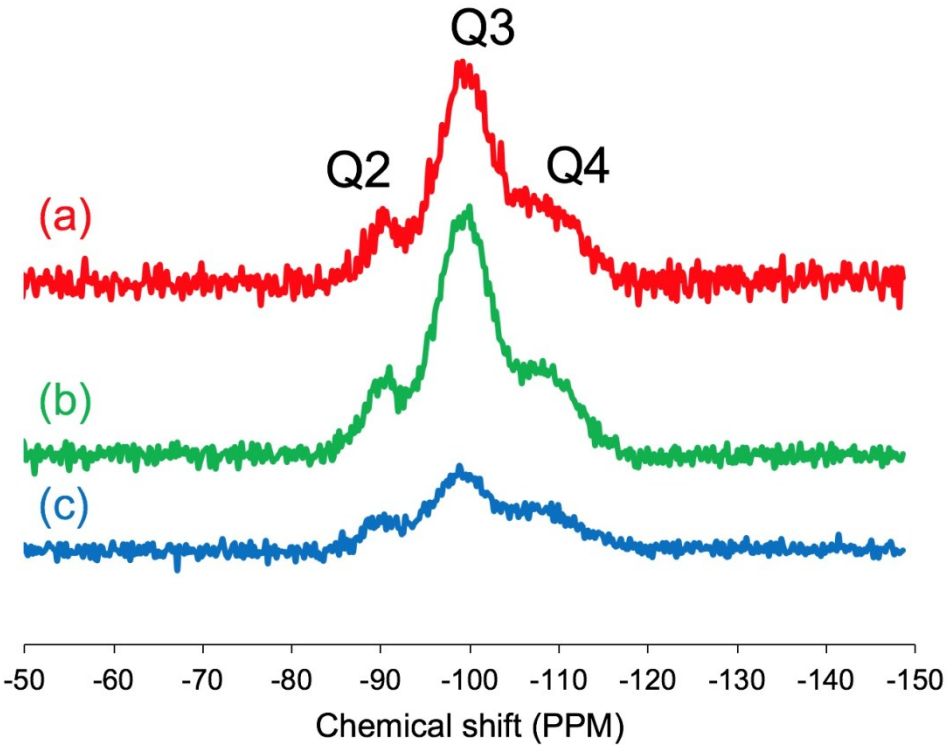


Figure S5. ^{29}Si CP/MAS NMR spectra of silica microballs prepared by calcination of μ-PSt-*g*-PEI@SiO_2 mediated from methanol. Calcination temperature: (a) 700 ^{o}C, (b) 800 ^{o}C and (c) 900 ^{o}C.

Table S1. Integration values of silica microballs obtained by calcination of μ-PSt-*g*-PEI@SiO_2 mediated in methanol

Calcination temperature (^{o}C)	Integration values (%)[b)]		
	Q2	Q3	Q4
700	10.0	65.2	24.8
800	12.0	64.4	23.6
900	18.4	51.1	31.7