

Electronic Supplementary Information (ESI) for:

Investigation of Silica Nanoparticles Distribution in

Nanoporous Polystyrene Fibers

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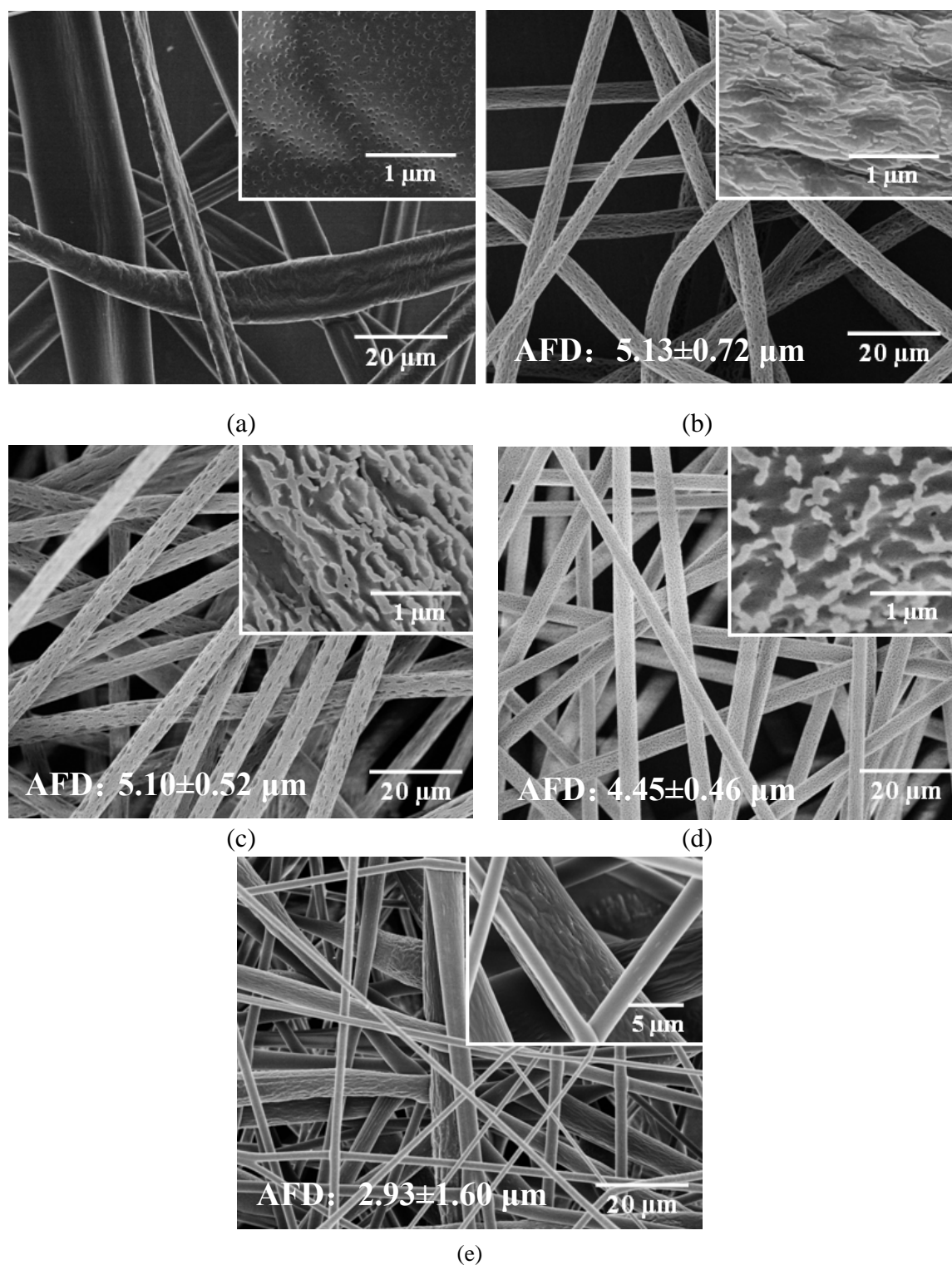


Figure S1. FE-SEM images of PS fibers formed from various weight ratios of THF/DMF in solvent: (a) 4/0, (b) 3/1, (c) 2/2, (d) 1/3, and (e) 0/4. (AFD represents average fiber diameter.)

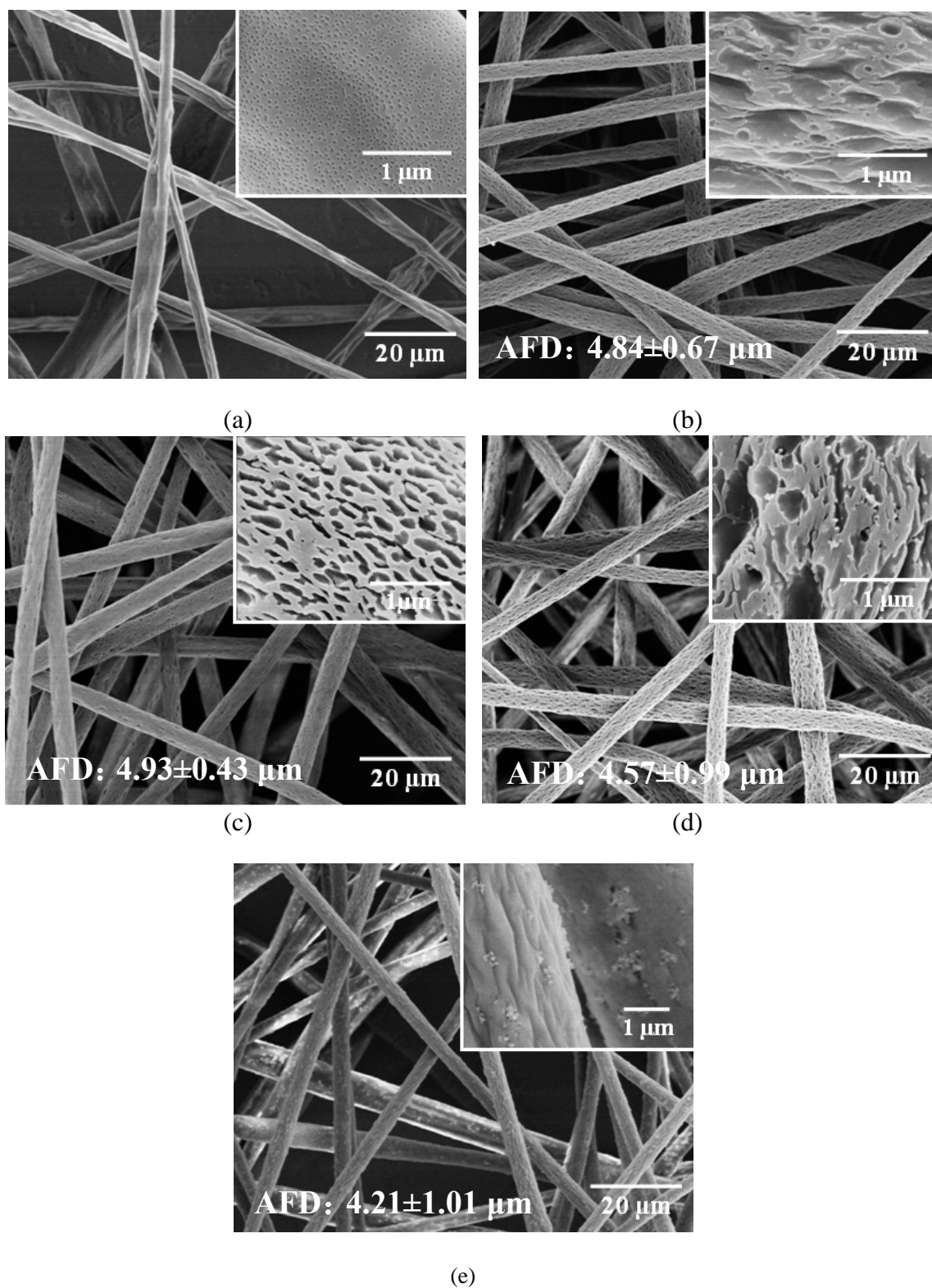


Figure S2. FE-SEM images of PS fibers loaded with 7.7 wt% silica formed from various weight ratios of THF/DMF in solvent: (a) 4/0, (b) 3/1, (c) 2/2, (d) 1/3, and (e) 0/4.

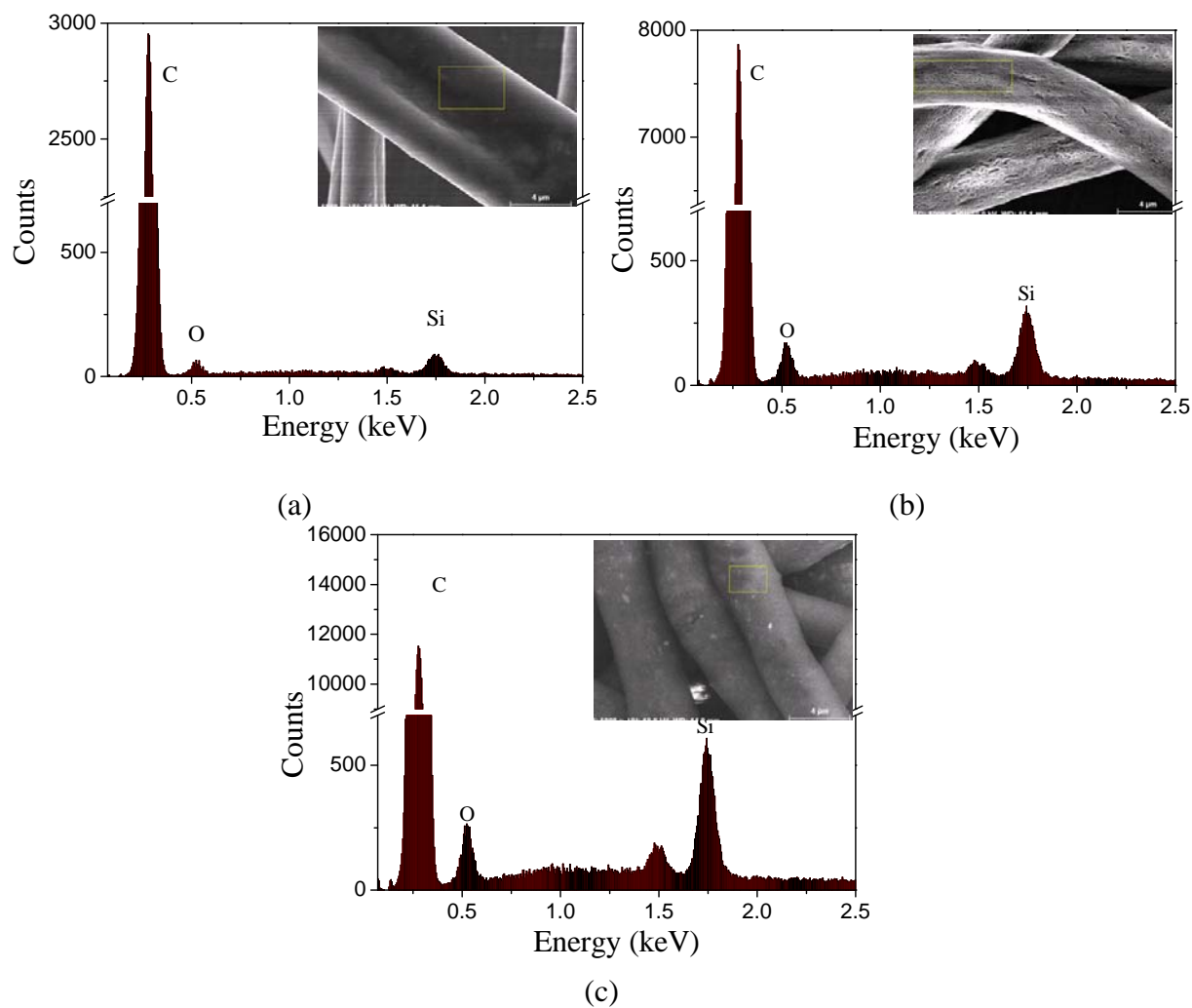


Figure S3. EDX spectrum of PS fibers loaded with 7.7 wt% silica formed from various weight ratios of THF/DMF in solvent: (a) 4/0, (b) 2/2, and (c) 0/4. (Red squares in insets of FE-SEM images as insets of (a), (b) and (c) indicate the actual position of elements for EDX analysis)

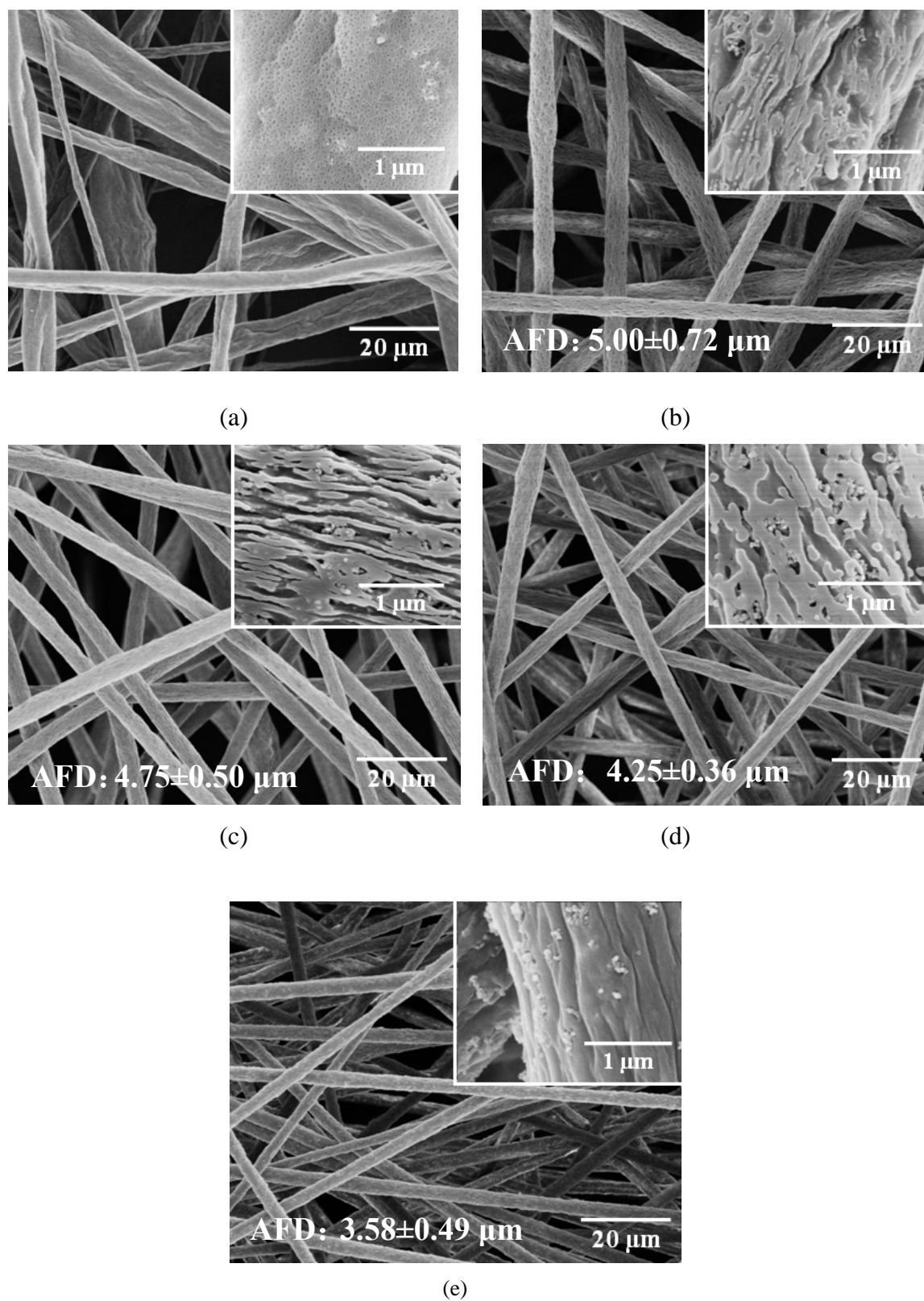


Figure S4. FE-SEM images of PS fibers loaded with 14.3 wt% silica formed from various weight ratios of THF/DMF in solvent: (a) 4/0, (b) 3/1, (c) 2/2, (d) 1/3, and (e) 0/4.

Table S1. Average elemental composition of PS fibers loaded with 7.7 wt% silica formed from various weight ratios of THF/DMF in solvent as determined by EDX^a

Polymer	THF/DMF (w/w)	Element	wt%	at%
PS	4/0	Si	3.00 ± 0.21	1.32 ± 0.11
		O	5.26 ± 0.65	4.08 ± 0.57
	2/2	Si	3.85 ± 0.27	1.71 ± 0.13
		O	6.35 ± 0.90	4.96 ± 0.72
	0/4	Si	4.99 ± 0.22	2.24 ± 0.11
		O	7.28 ± 1.37	5.74 ± 1.11

^a Multiple areas on the sample were tested, and the average measurements and standard deviation were calculated (three measurements were done on each sample to determine the average).

Table S2. WCAs of the as-prepared PS fibrous mats^a

Polymer	Silica content (wt%)	Solvent composition (THF/DMF, w/w)	WCA (°)
PS	0	0/4	148.6 ± 1.9
		1/3	155.6 ± 1.8
		2/2	154.0 ± 1.6
		3/1	147.9 ± 1.7
		4/0	142.5 ± 2.1
		0/4	153.8 ± 1.3
	7.7	1/3	153.9 ± 1.4
		2/2	152.5 ± 1.1
		3/1	146.9 ± 1.3
		4/0	144.6 ± 1.9
	14.3	0/4	156.7 ± 0.6
		1/3	152.3 ± 0.9
		2/2	151.2 ± 1.1
		3/1	145.6 ± 1.0
		4/0	149.6 ± 1.5

^a WCAs of each sample was measured five times at different place, and the average measurements and standard deviation were calculated.