

Supplementary Information

Excitation dependent recombination studies on SnO₂/TiO₂ electrospun nanofiber†

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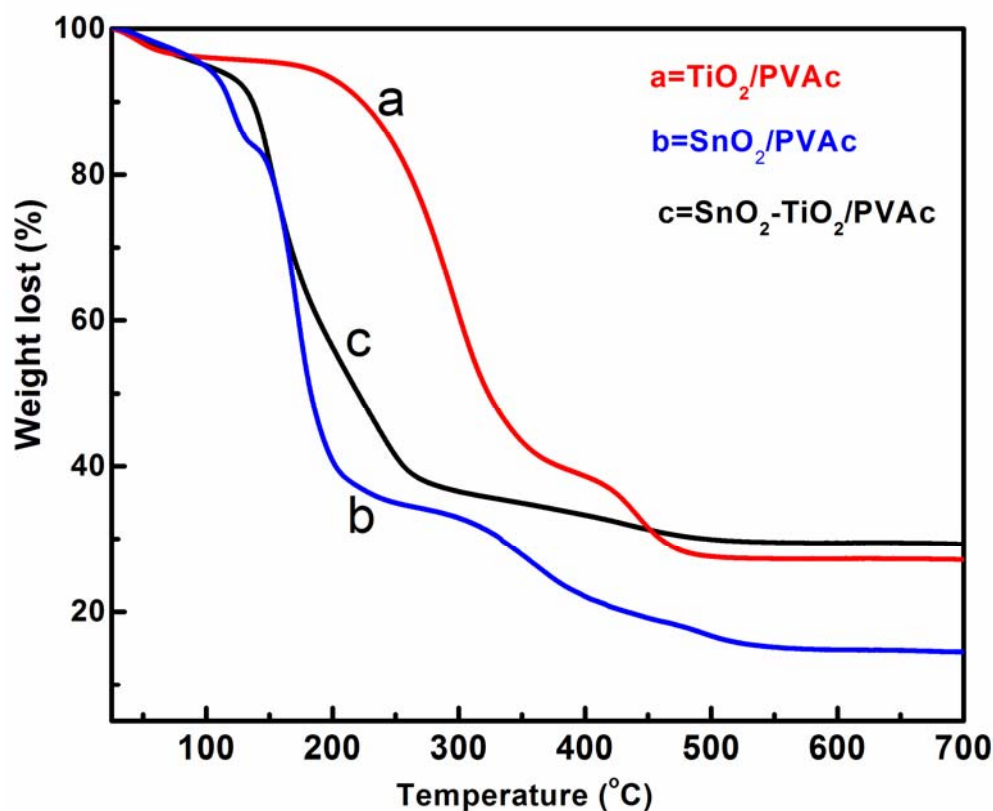


Figure SI-1: TGA thermograms of the as-spun nanostructures of (a) TiO₂/PVAc (b) SnO₂/PVAc and (c) SnO₂-TiO₂/PVAc.

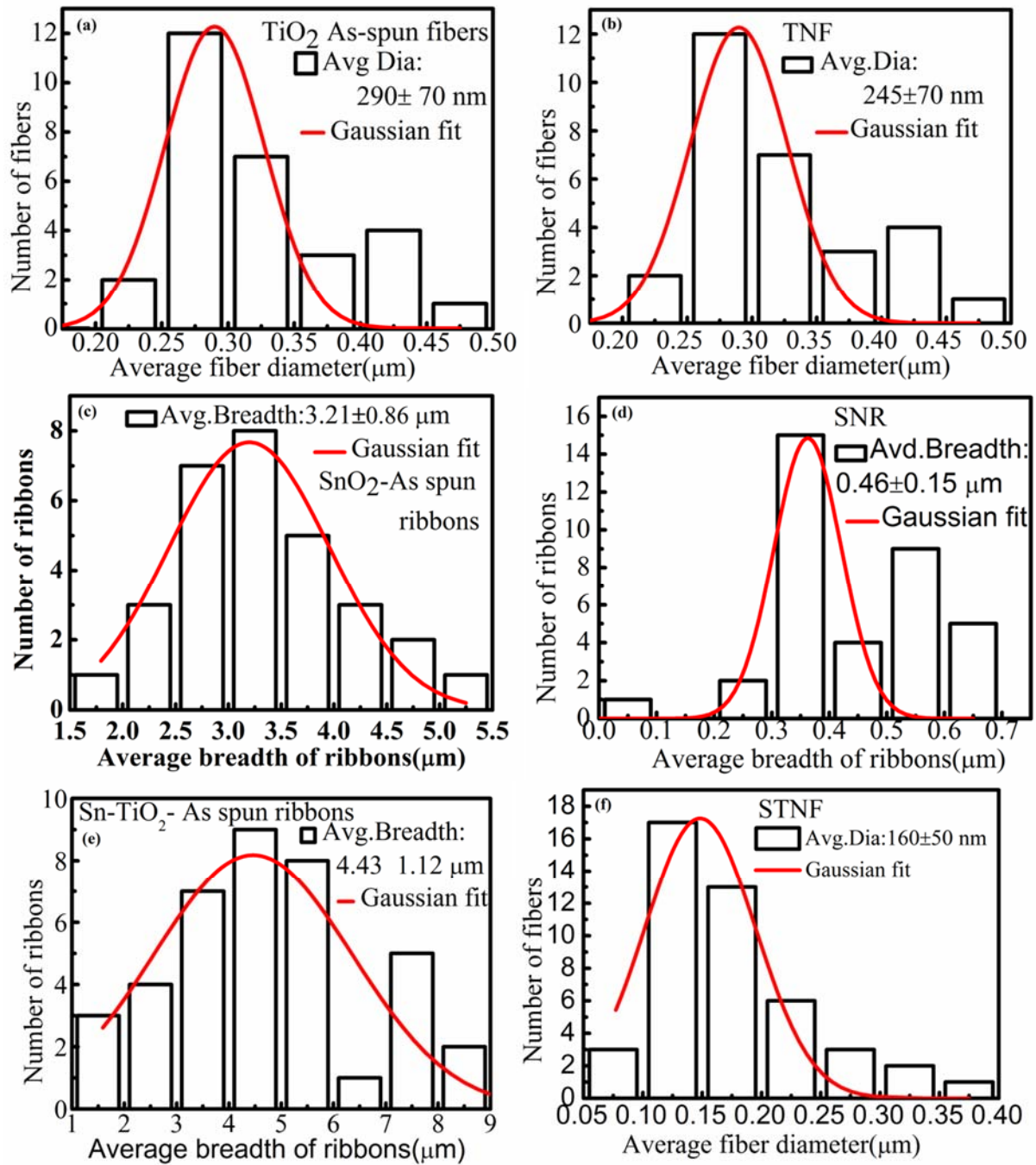


Figure SI-2: The fiber dimensions from SEM images of as spun (a) TiO₂ (c) SnO₂ (e) SnO₂-TiO₂ and after calcination (b) TNF (d) SNR (f) STNF at 450 °C respectively.

Table SI-1 : The average dimensions of the fibers and ribbons.

Compound			Avg. Dimensions
TiO ₂	TNF	As-spun	290±70 nm
		450 °C	245±70 nm
SnO ₂	SNR	As-spun	3.21±0.86 μm
		450 °C	0.46±0.15 μm
SnO ₂ -TiO ₂	STNF	As-spun	4.43±1.12 μm
		450 °C	160±50 nm

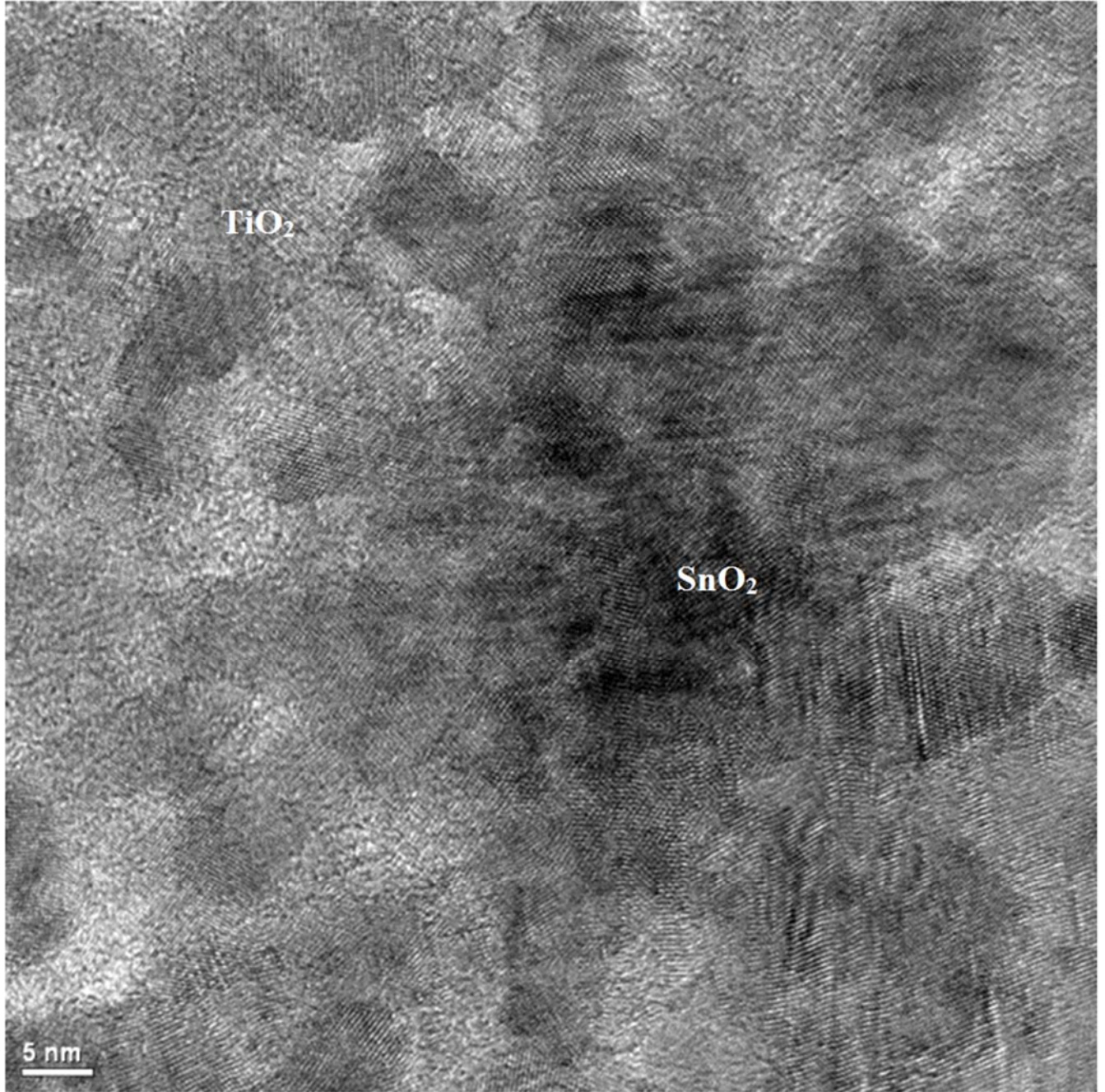


Figure SI-3 : Magnified TEM image to see lattice patterns of TiO₂ and SnO₂.

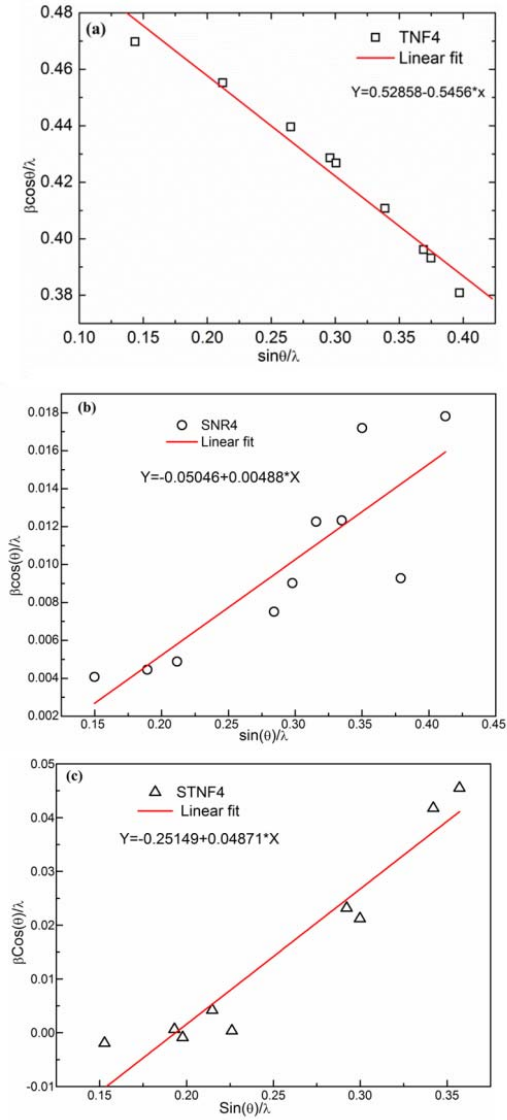


Figure SI-4: Williamson-Hall plots for (a) TNF4 (b) SNR4 and (c) STNF4 from the XRD data.

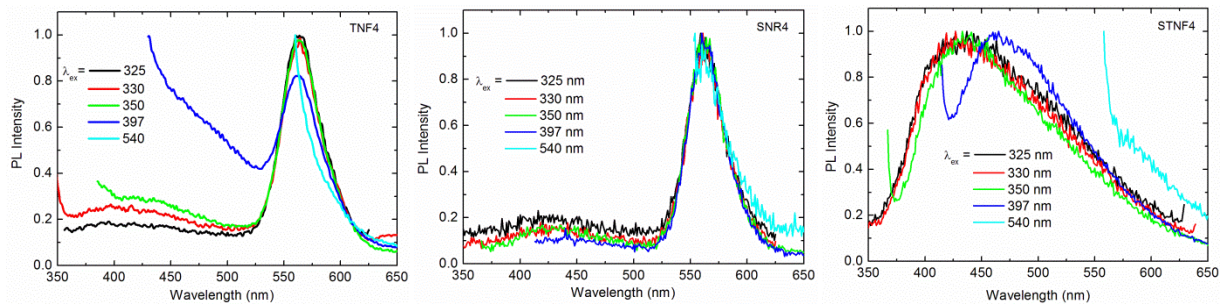


Figure SI-5 : PL emission spectra of all electrospun nanofibers at different excitation wavelengths.

Table SI- 2: PL peak positions (Pk), Intensity (ht) and full width at half maximum (fwhm) at different excitation.

Sample	Range	Pk (nm)	325		330		350, 3.54		397, 3.12		540ex	
			ht	fwhm	ht	fwhm	ht	fwhm	ht	fwhm	ht	fwhm
TNF4	R1	383	0.049	34.06	0.079	35.43	0.011	25.23				
		408	0.037	26.49	0.074	45.52	0.007	25.20				
		435	0.033	44.97	0.052	50.92	0.008	27.49	0.003	34.14		
		487	0.008	18.32	0.019	22.35	0.003	25.54	0.001	37.34		
	R2	562	0.84	37.18	0.84	35.61	0.048	33.53	0.0047	49.75		
		585	0.24	52.12	0.22	43.82	0.013	33.56	0.00071	72.84		
SNR4	R1	372	0.019	24.99	0.019	27.44	0.027	11.49				
		406	0.081	40.83	0.071	48.79	0.057	34.08				
		440	0.078	35.34	0.053	39.92	0.098	44.72	0.062	50.38		
		492	0.016	32.38	0.024	24.85	0.019	31.09	0.019	22.81		
	R2	561	0.84	36.82	0.18	55.52	0.78	36.18	0.19	56.42		
		585	0.84	35.38	0.20	53.81	0.82	35.67	0.20	53.42		
STNF4	R1	373	0.251	31.41	0.144	32.00						
		402	0.466	31.18	0.440	38.32	0.435	47.18				
		433	0.658	55.50	0.508	59.22	0.632	55.21	0.495	59.06		
		488	0.686	91.82	0.648	106.88	0.656	82.78	0.746	78.60		
	R2	560	0.146	73.91	0.115	86.69	0.183	56.77	0.237	42.28		
		586	0.108	121.25	0.075	123.92	0.122	70.93	0.091	37.90		

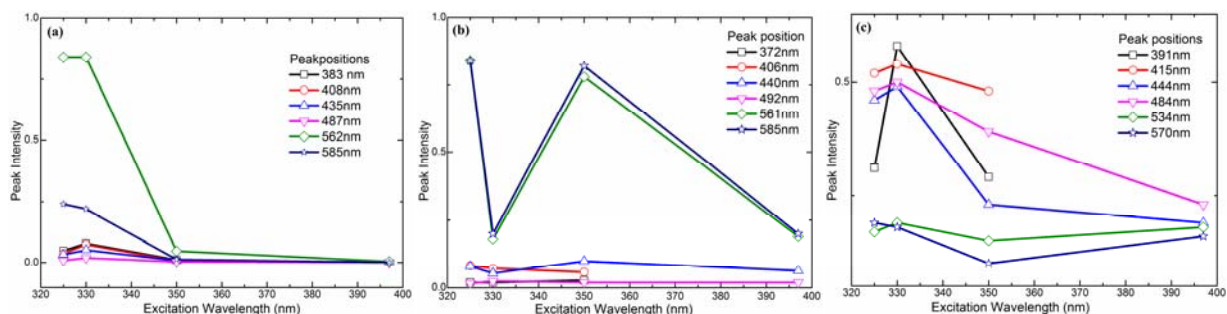


Figure SI-6: Intensity variation with respect to the excitation wavelength at all the PL peaks.