Electronic Supplementary Information

Electrospun V_2O_5-doped α-Fe_2O_3 composite nanotubes with tunable ferromagnetism for high-performance supercapacitor electrodes

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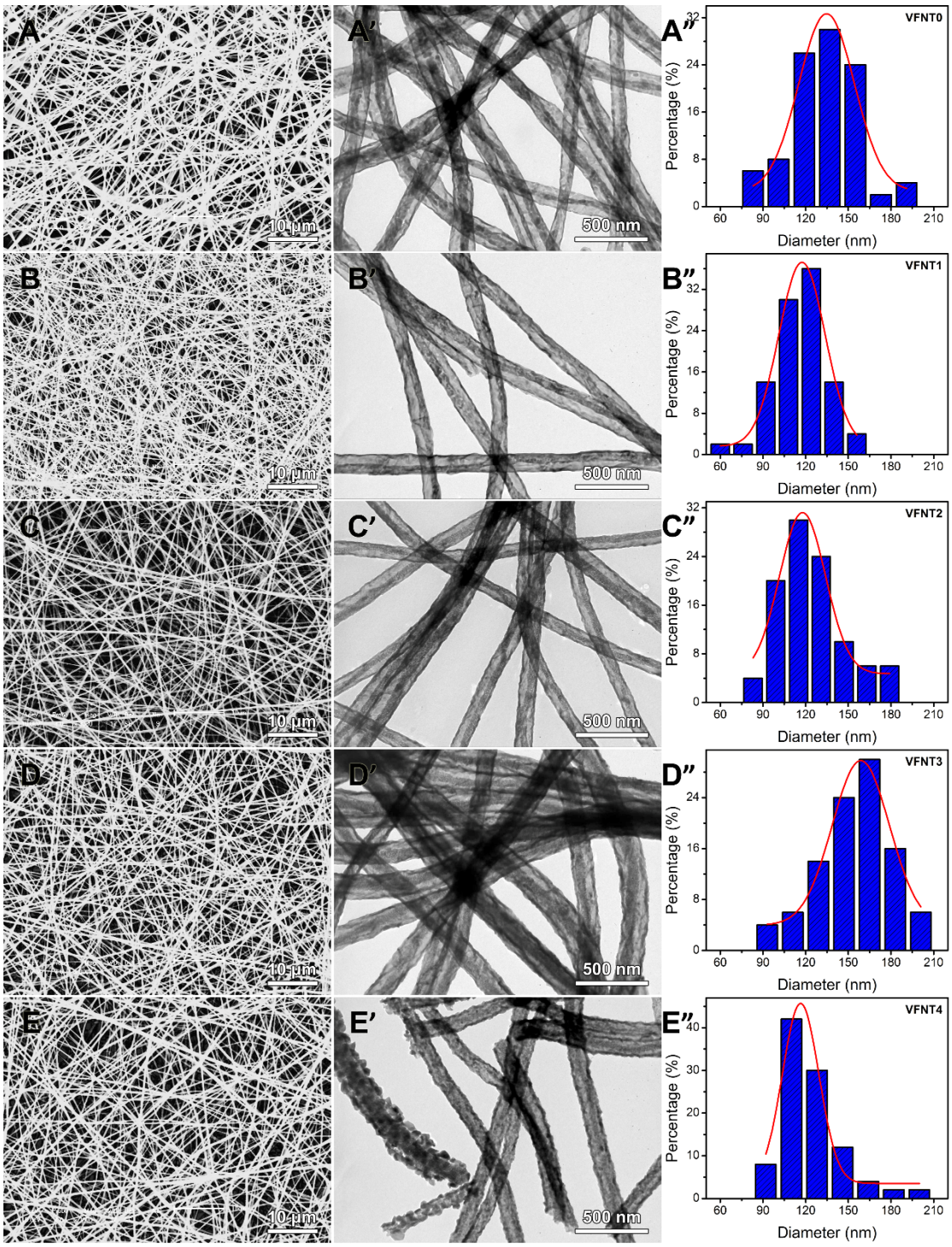

Fig. S1 (A-E) SEM images of the precursor fibers with different addition amounts of $VO(acac)_2$. (A'-E') The corresponding TEM images and (A"-E") diameter distributions of VFNT0, VFNT1, VFNT2, VFNT3 and VFNT4.

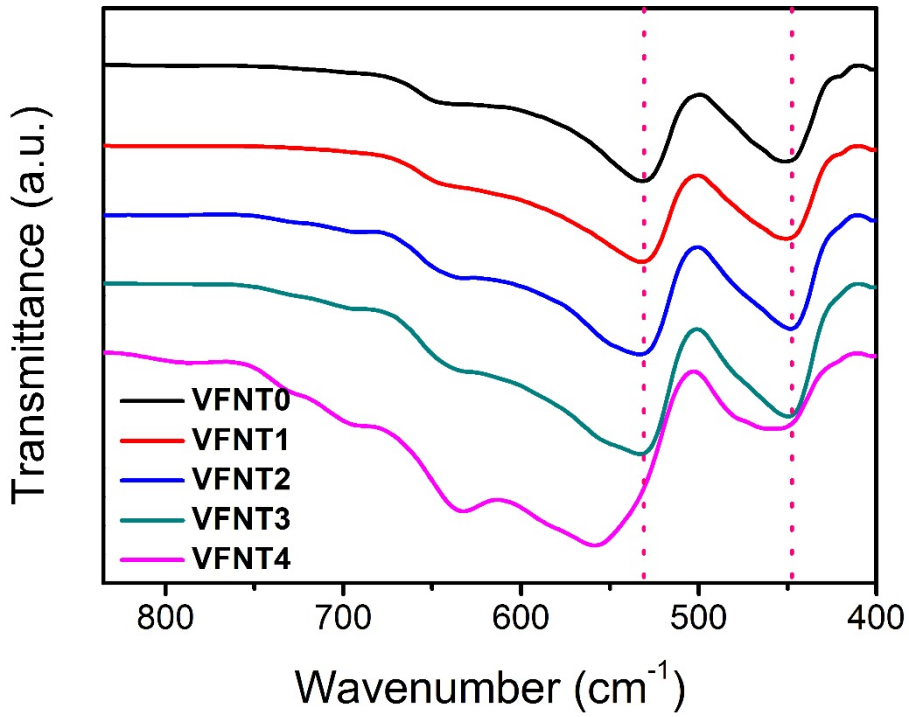

Fig. S2 FTIR spectra of the electrospun samples after calcination treatment.

As shown in Fig. S2, when the mass ratio of the dopant does not exceed 5.0 wt%, two broad absorption bands located at around 532 and 447 cm^{-1} are identified as the characteristic lattice vibrations of α-Fe_2O_3 phase.[1] However, it is noteworthy that both the two peeks mentioned above, by contrast, shift to higher wavenumbers respectively at 559 and 459 cm^{-1} for VFNT4, which should be ascribed to the partial vacancy ordering in the octahedral positions of maghemite (γ-Fe_2O_3),[2] indicating the presence of γ-Fe_2O_3 in the obtained sample VFNT4.

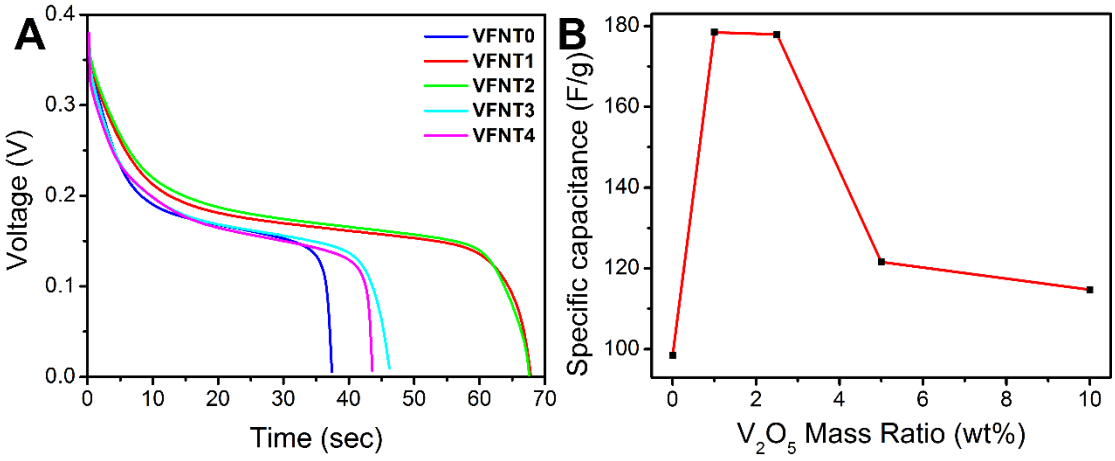

Fig. S3 (A) GV discharge curves at a current density of 1 $A \cdot g^{-1}$ with a potential window of 0 ~0.38 V. (B) The associated line chart of specific capacitances versus the mass ratio of V_2O_5.

References

1 J. Sundaramurthy, P. S. Kumar, M. Kalaivani, V. Thavasi, S. G. Mhaisalkar and S. Ramakrishna, RSC Advances, 2012, **2**, 8201-8208.

2 S. K. Sahoo, K. Agarwal, A. K. Singh, B. G. Polke and K. C. Raha, Int. J. Eng. Sci. Tech., 2010, **2**, 118-126; I. T. Kim, G. A. Nunnery, K. Jacob, J. Schwartz, X. T. Liu and R. Tannenbaum, J. Phys. Chem. C, 2010, **114**, 6944-6951.