Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

Tittle of Article: Role of Suppressed Oxygen Vacancy in $BiFeO_3$ Nanofiller to Improve the Polar Phase and Multifuntional Performance of Poly(vinylidene fluoride)

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ELECTRONIC SUPPLEMENTARY INFORMATIONS

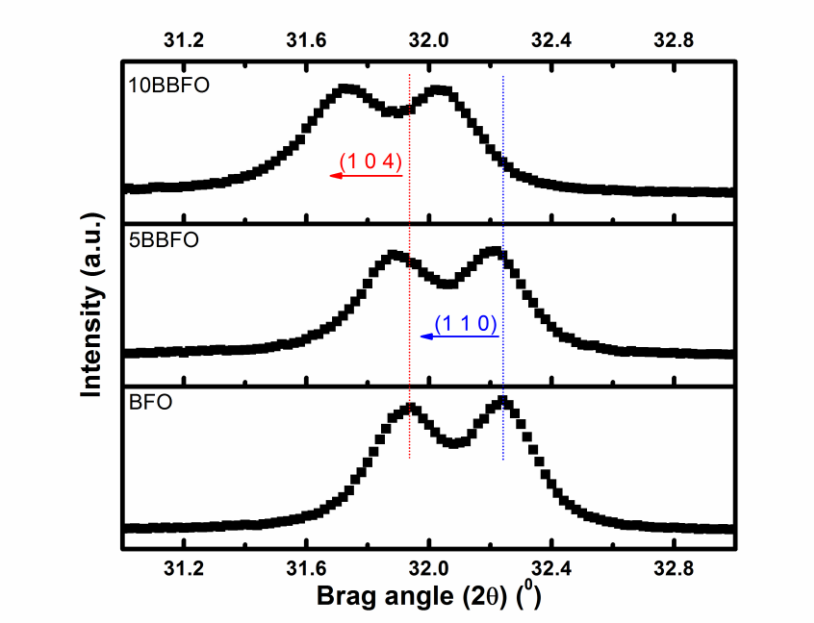

Fig. S1 Enlarged XRD of BFO, 5BBFO and 10BBFO around $2\theta=32^0$.

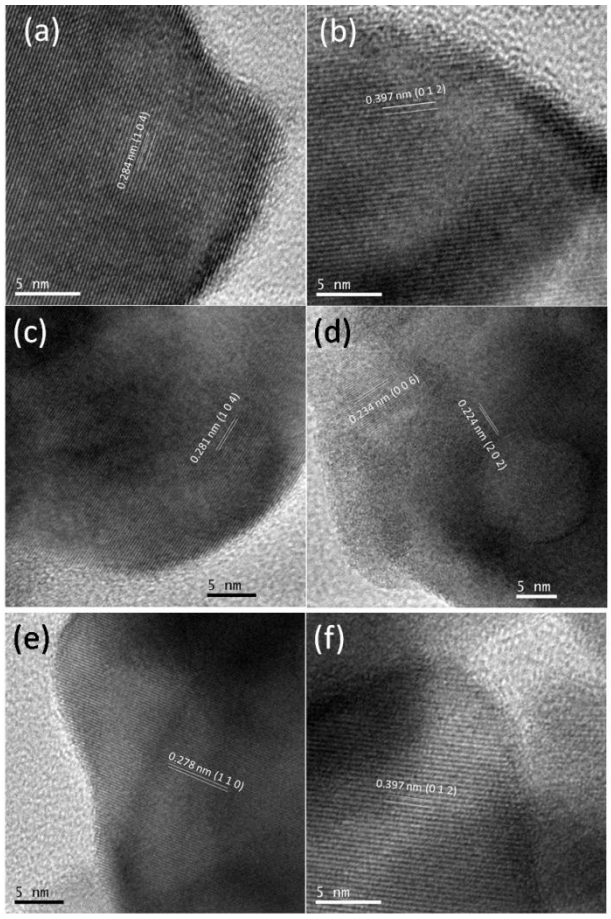

Fig. S2 HRTEM images of (a-b) BFO, (c-d) 5BBFO and (e-f) 10BBFO samples.

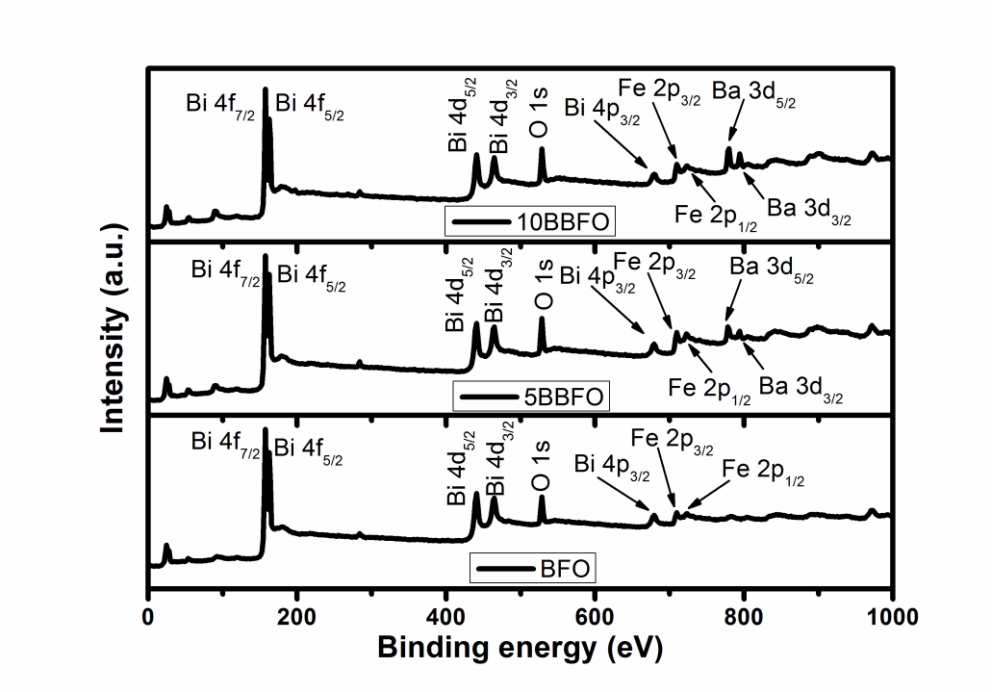

Fig. S3 XPS survey spectra of BFO, 5BBFO and 10BBFO samples.

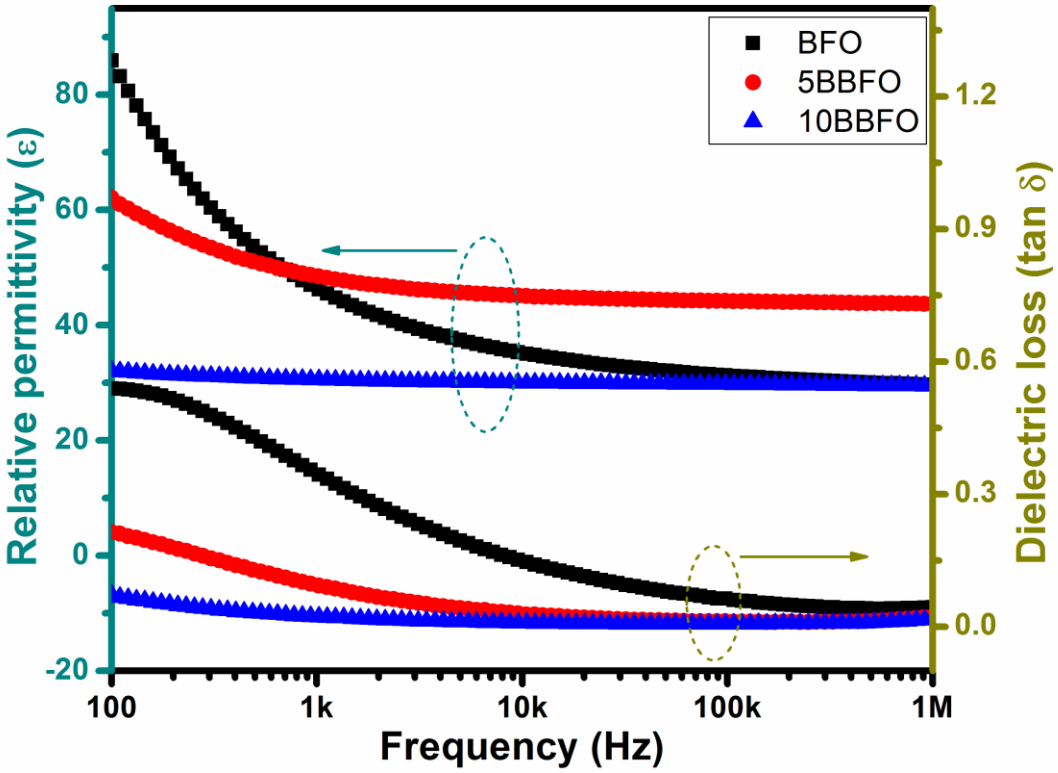

Fig. S4 Frequency dependent dielectric loss and dielectric permittivity of BFO, 5BBFO and 10BBFO pellets.

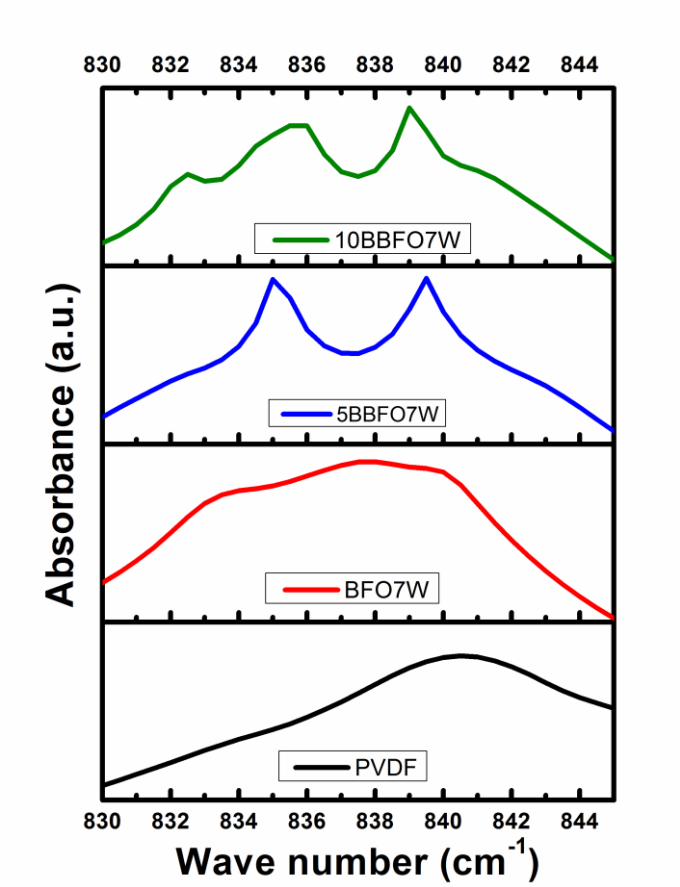

Fig. S5 FTIR absorption spectra of PVDF, BFO7W, 5BBFO7W and 10BBFO7W films within the range of 830 cm^{-1} to 840 cm^{-1}.

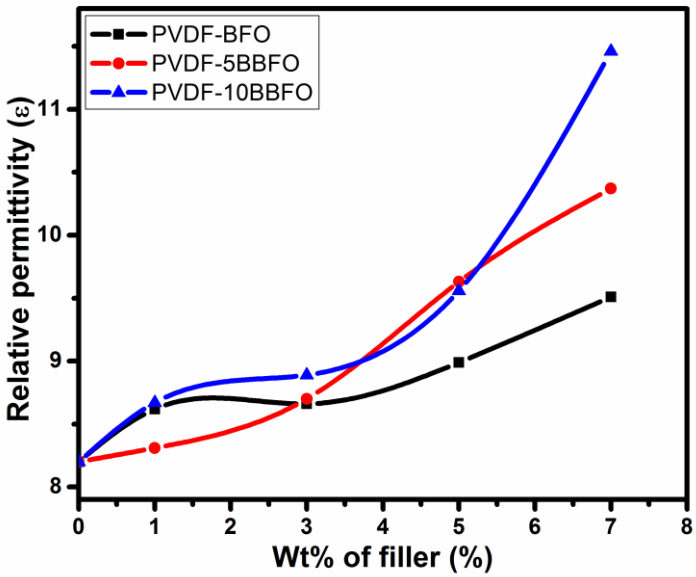

Fig. S6 Variation of relative permittivity with wt% of BFO, 5BBFO and 10BBFO nanofillers.

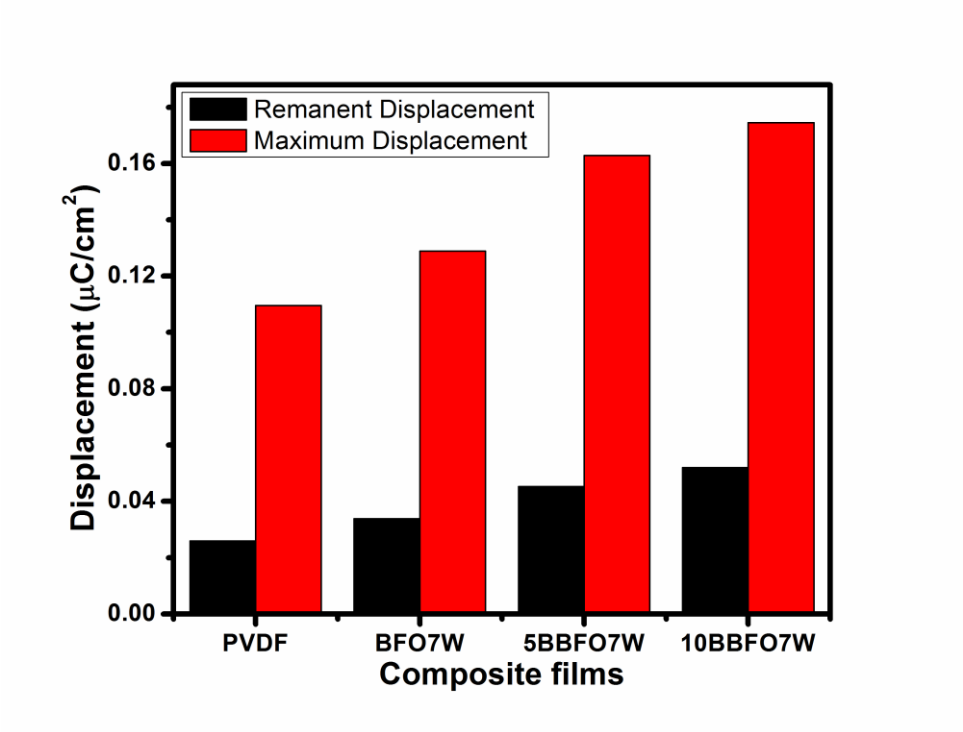

Fig. S7 Remanent and Maximum electric displacement of different composite films.

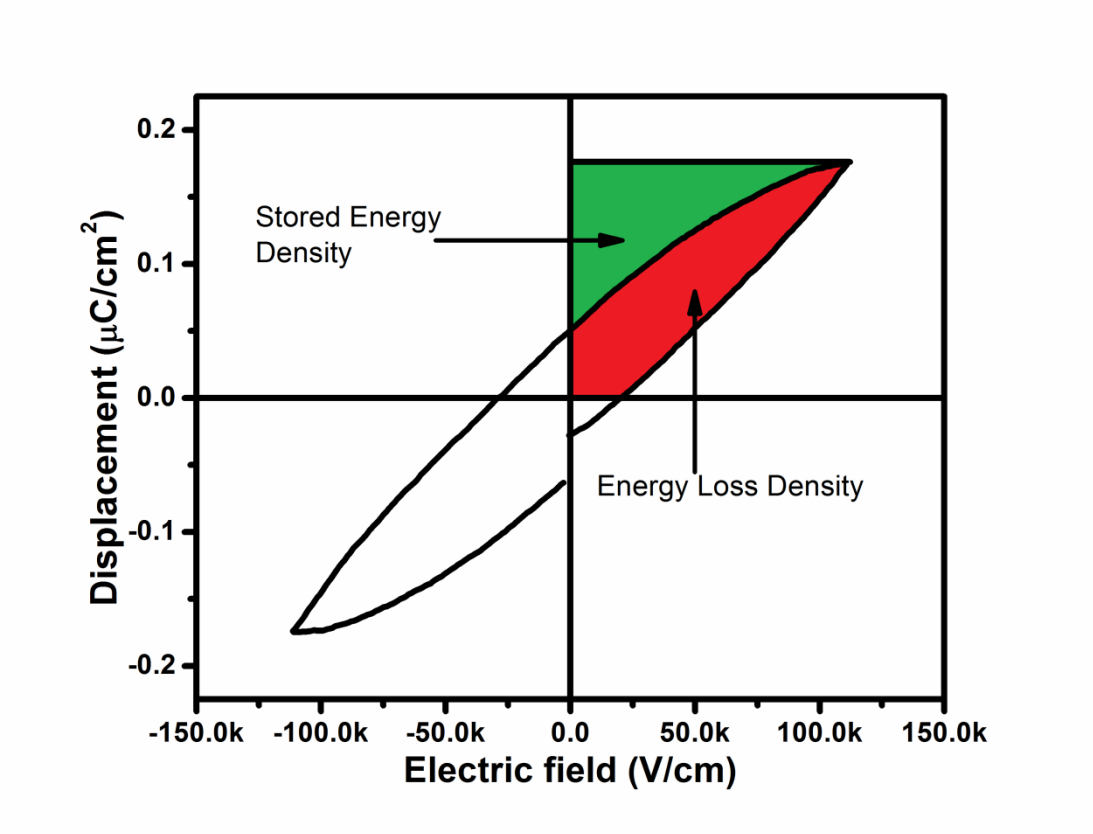

Fig. S8 D-E hysteresis loop showing the areas representing stored energy density and energy loss density.

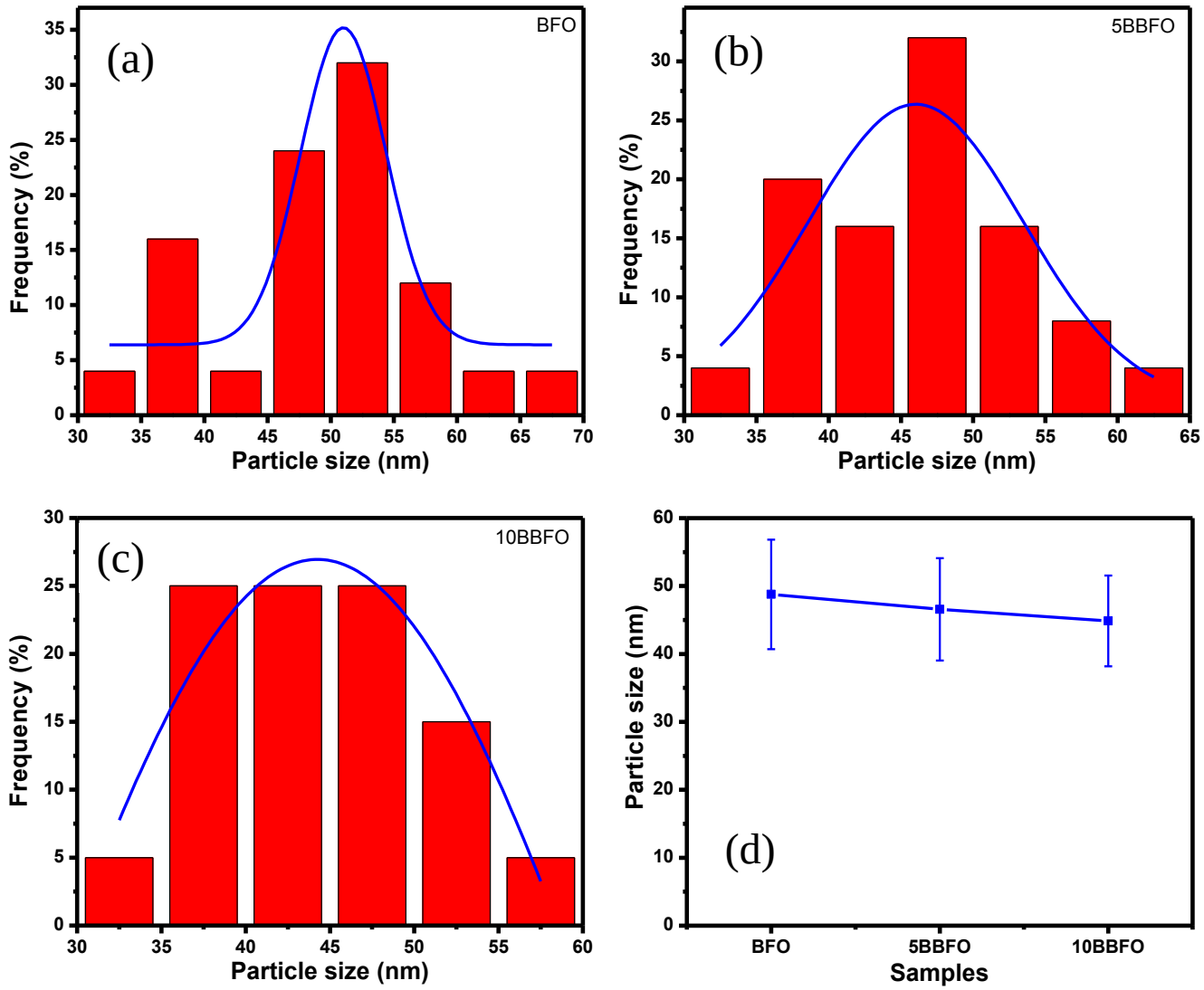

Fig. S9 Particle size distribution of (a) BFO, (b) 5BBFO and (c) 10BBFO nanoparticles. (d) Average particle size of these samples with standard deviation.

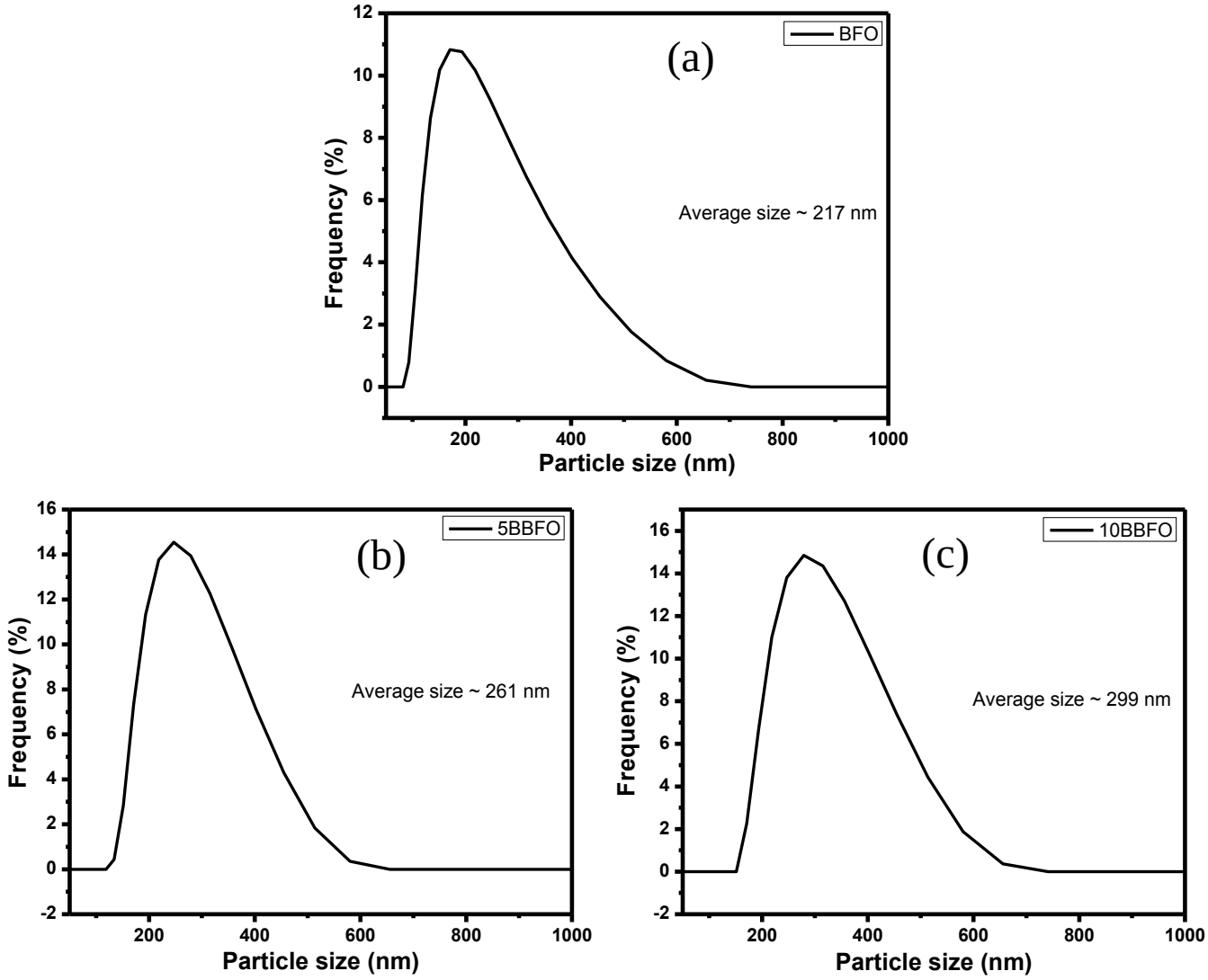

Fig. S10 Particle size of (a) BFO, (b) 5BBFO and 10(c) 10BBFO nanoparticles as obtained from DLS measurement.

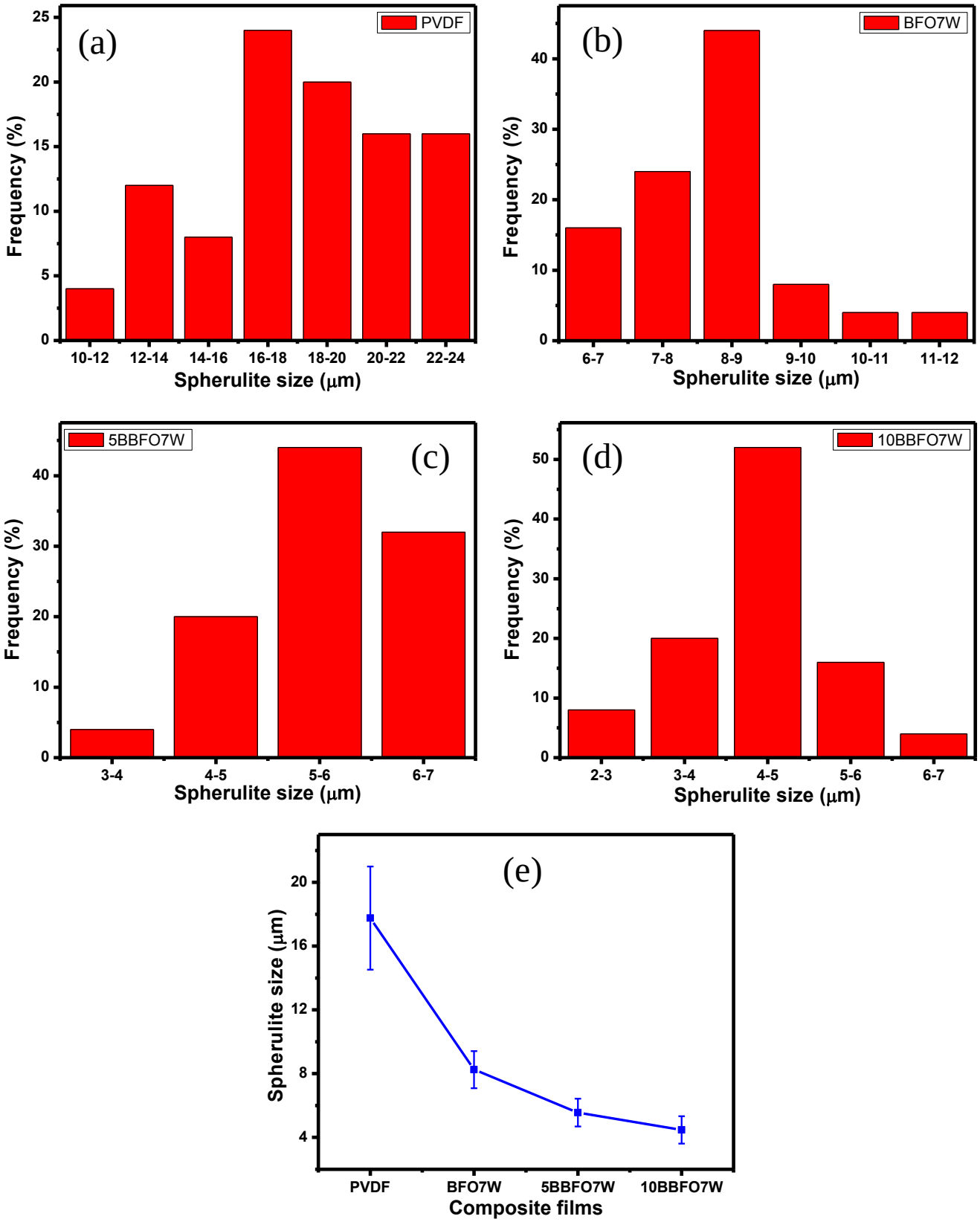

Fig. S11 Spherulite size distribution of (a) PVDF, (b) BFO7W, (c) 5BBFO7W and (d) 10BBFO7W films. (e) Average spherulite size with standard deviation.

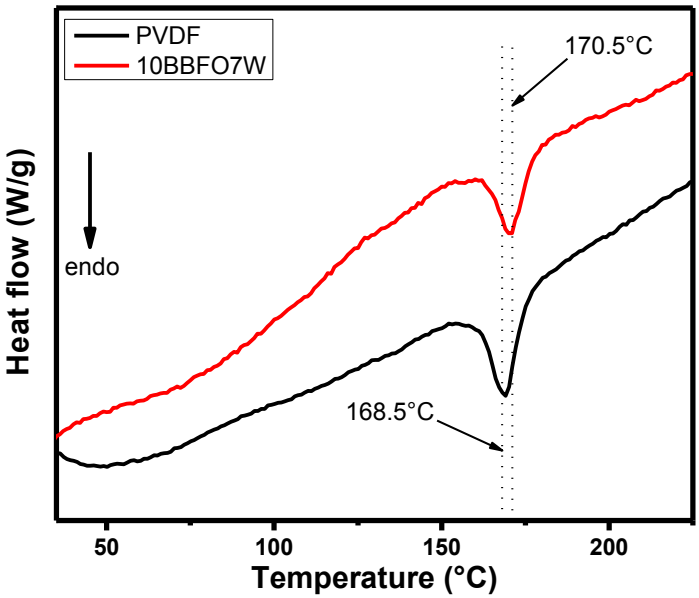

Fig. S12 DSC curves of neat PVDF and 10BBFO7W sample.

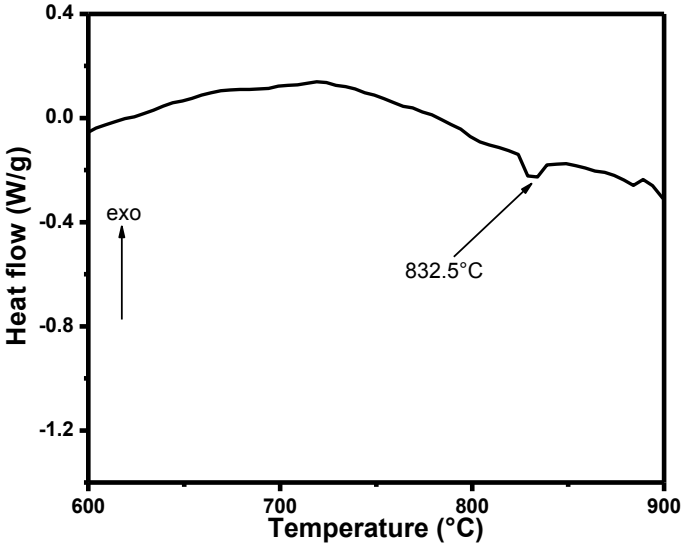

Fig. S13 DSC curve of 10BBFO nanoparticles.