Supporting Information

Core-shell structured Ag@C nanocables for flexible ferroelectric polymer nanodielectric materials with low percolation threshold and excellent dielectric properties

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The content of the supporting information:

1. The bottom surface SEM image of the Ag@C-NC/PVDF nanocomposite films with 2.17 vol% and 7.66 vol% loading of Ag@C-NC, respectively. (Fig. S1)



2. The ATR-FTIR spectra of the Ag@C-NC/PVDF nanocomposites. (Fig. S2)



3. The DSC analysis of the Ag@C-NC/PVDF nanocomposites.

The experiments were conducted under highly pure nitrogen atmosphere. The samples were first heated to 200 °C and held for 3 min to eliminate the thermal history. The samples were then cooled down to room temperature and held for 3 min, followed by heating to 200 °C. Both the cooling and heating rates were 10 °C/min, and the first cooling and second heating data were recorded. All the DSC curves were normalized by the sample weight after baseline correction. To derive the information of sample crystallinity from the DSC results, the degree of mass crystallinity (X_c) was calculated from the melting enthalpy of the second heating trace (ΔH_m) by using the following equation:

$$X_{c}(\%) = \frac{\Delta H_{m}}{(1 - w)\Delta H_{0}}$$
(3)

where $\Delta H_0 = 104.6 \text{ J/g}$ is the heat of fusion for 100% crystalline PVDF, and w is the content of Ag@C-NC in the Ag@C-NC/PVDF nanocomposites.

4. The temperature coefficient (Temp-Coef) defined by Eq. (2) is plotted against the volume fration of Ag@C-NC for the Ag@C-NC/PVDF nanocomposites at 1 kHz. (Fig. S3)

