

## Supplementary Materials for

### Low-entropy Amorphous Dielectric Polymers for High-Temperature Capacitive Energy Storage

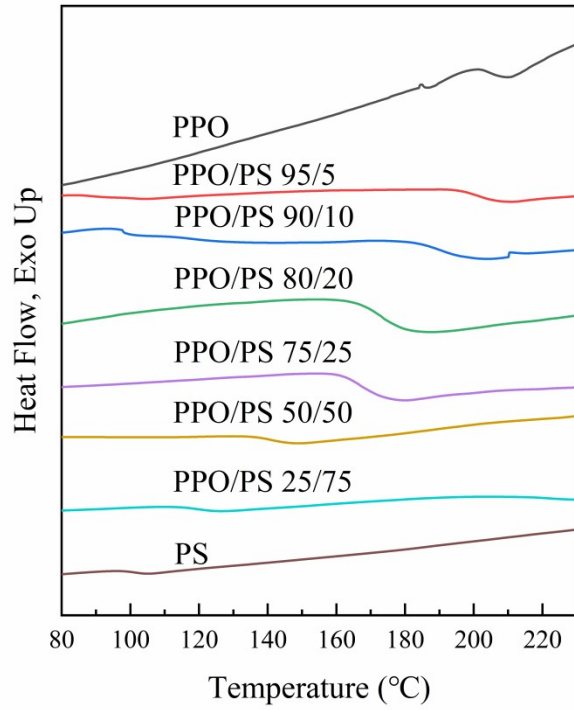
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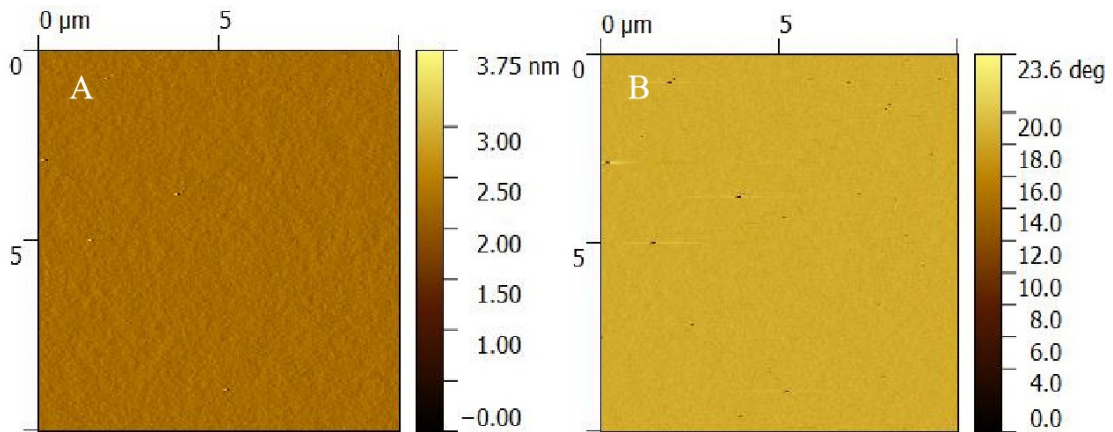
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#### **This PDF file includes:**

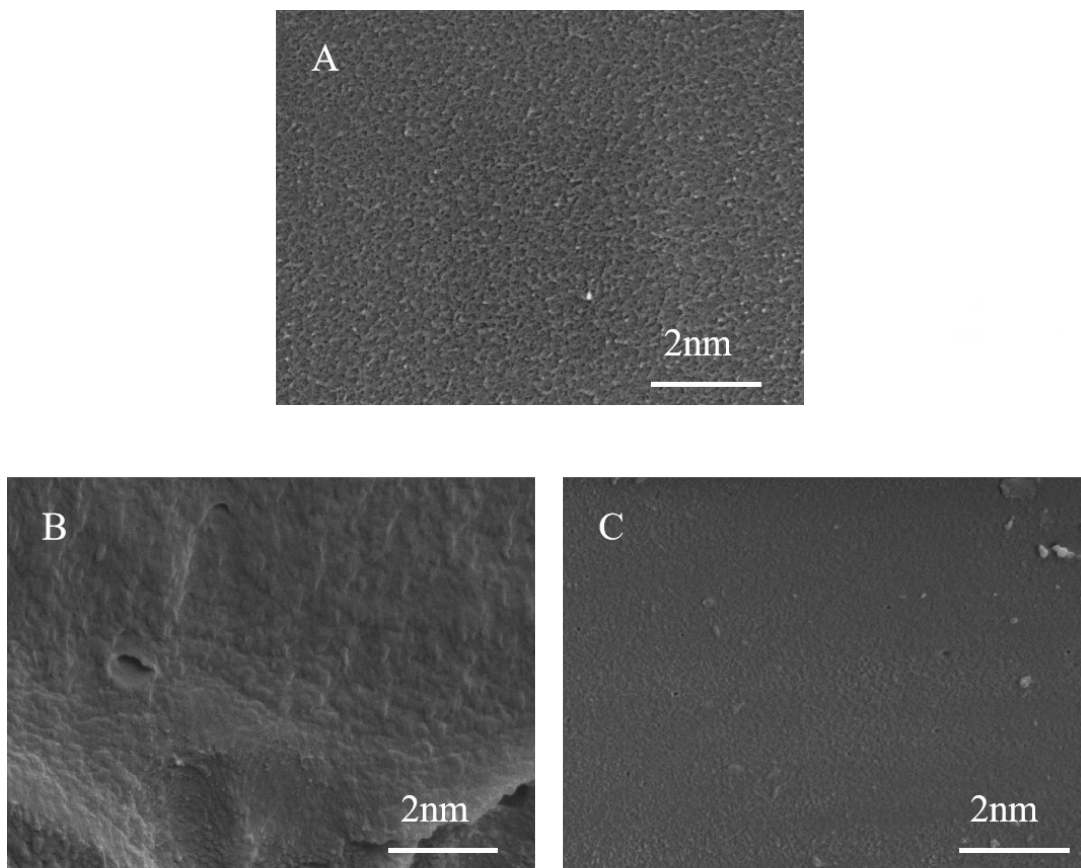
Figures. S1 to S13.



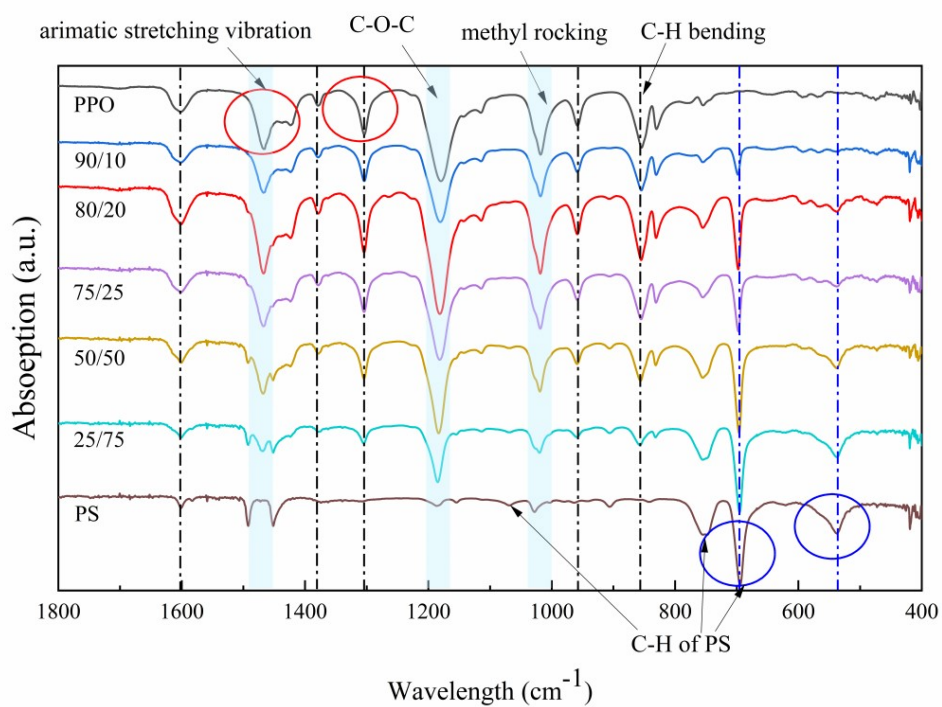
**Figure S1.** DSC heating curves of PPO/PS blends with different compositions.



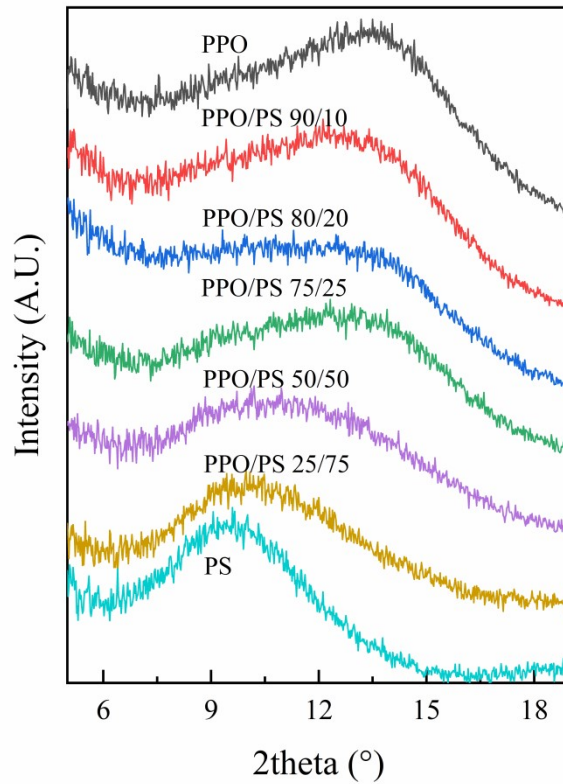
**Figure S2.** Tapping-mode AFM data for neat PPO. (A) topography and (B) phase images with a scanning area of 10×10 μm.



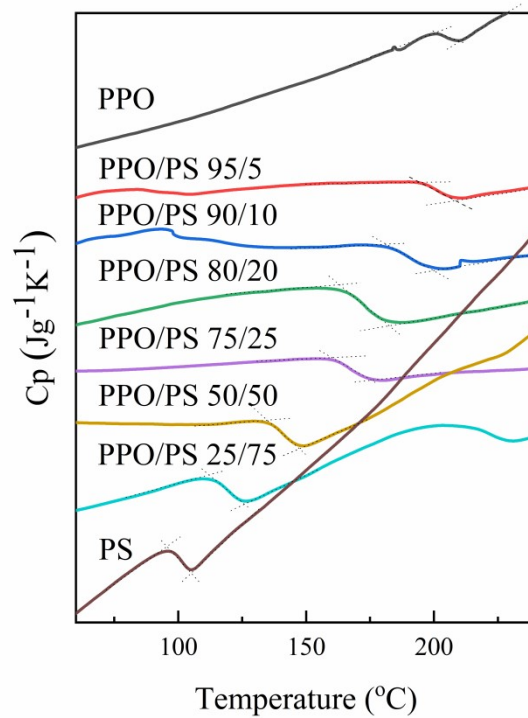
**Figure S3.** SEM images of (A) PPO/PS 75%/25%, (B) PPO and (C) PS.



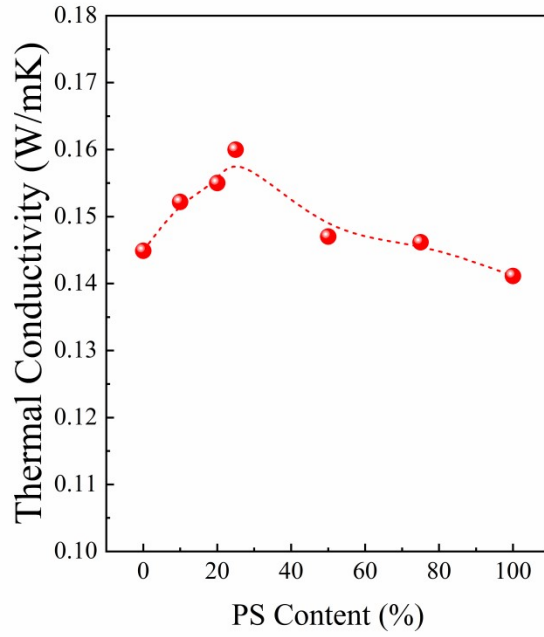
**Figure S4.** FT-IR spectra of PPO/PS blends with different composition.



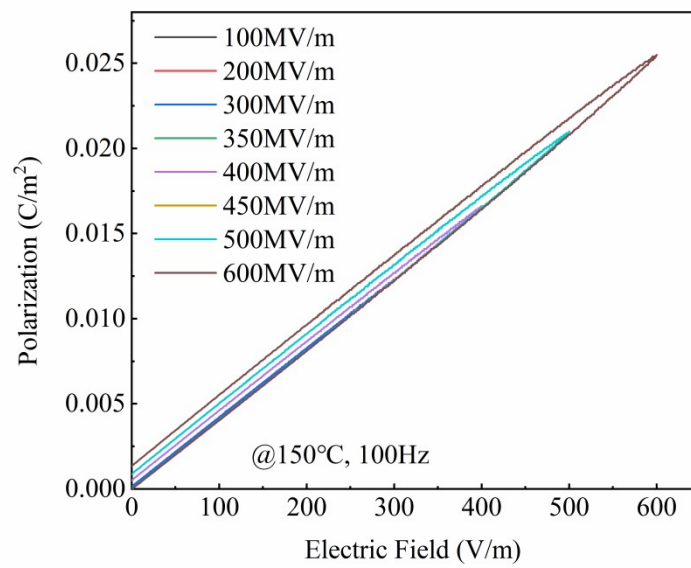
**Figure S5.** X-ray diffraction (XRD) curves of PPO/PS blends with different composition.



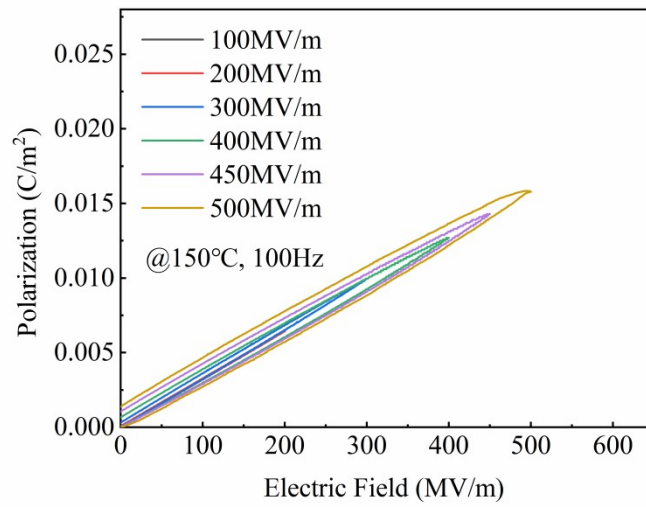
**Figure S6.** Specific heat capacity ( $C_p$ ) versus temperature of PPO/PS blends with different compositions.



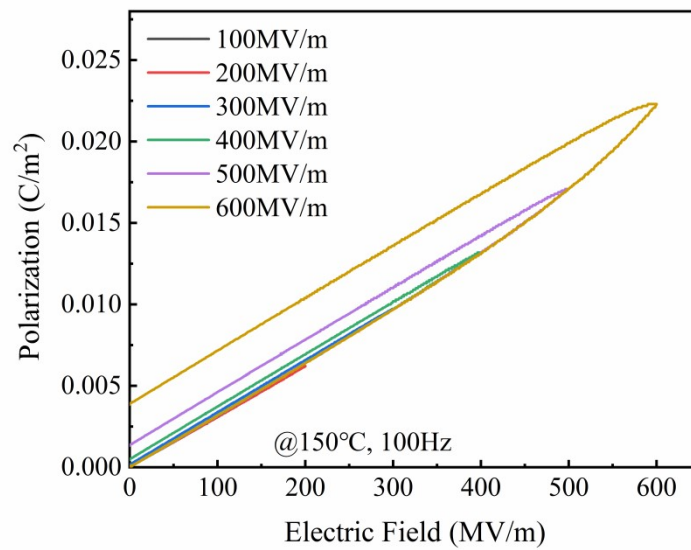
**Figure S7.** Thermal Conductivity of PPO/PS blends with different compositions.



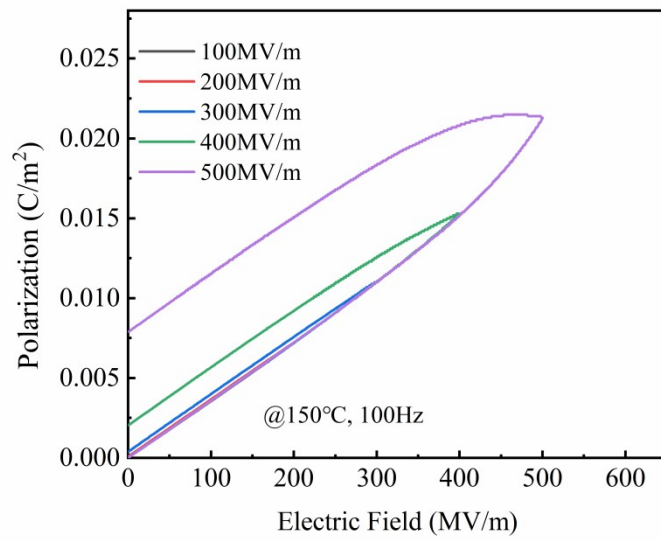
**Figure S8.** *P-E* loops of PPO/PS 75%/25% measured at 150°C and different electric field.



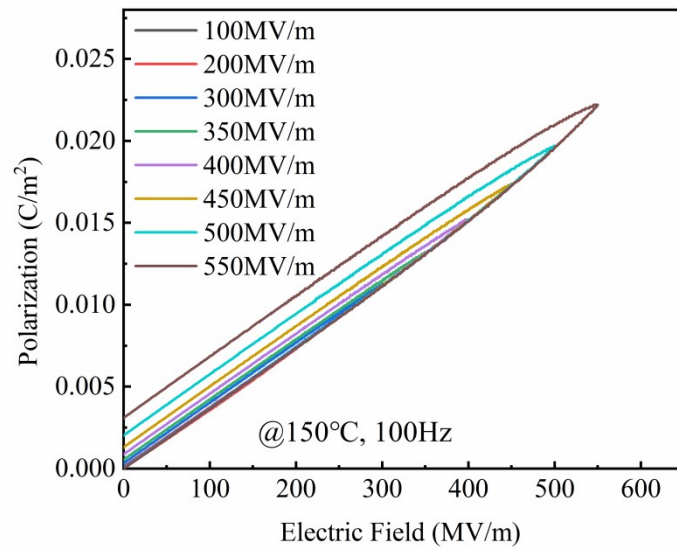
**Figure S9.** *P-E* loops of PPO measured at 150°C and different electric field.



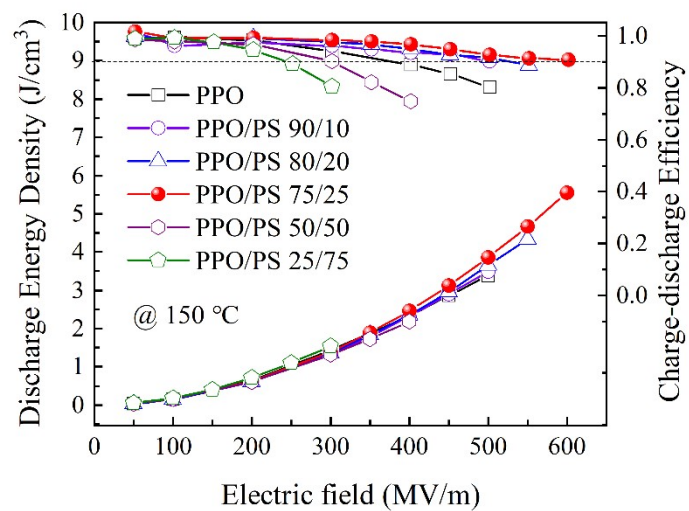
**Figure S10.** *P-E* loops of PEI measured at 150°C and different electric field.



**Figure S11.** *P-E* loops of PC measured at 150°C and different electric field.



**Figure S12.** *P-E* loops of PSU measured at 150°C and different electric field.



**Figure S13.** Discharged energy density and charge–discharge efficiency of PPO/PS blends with different compositions measured at 150°C.