Dielectric property and energy storage performance enhancement for iron niobium based tungsten bronze ceramic

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Supplementary Information:

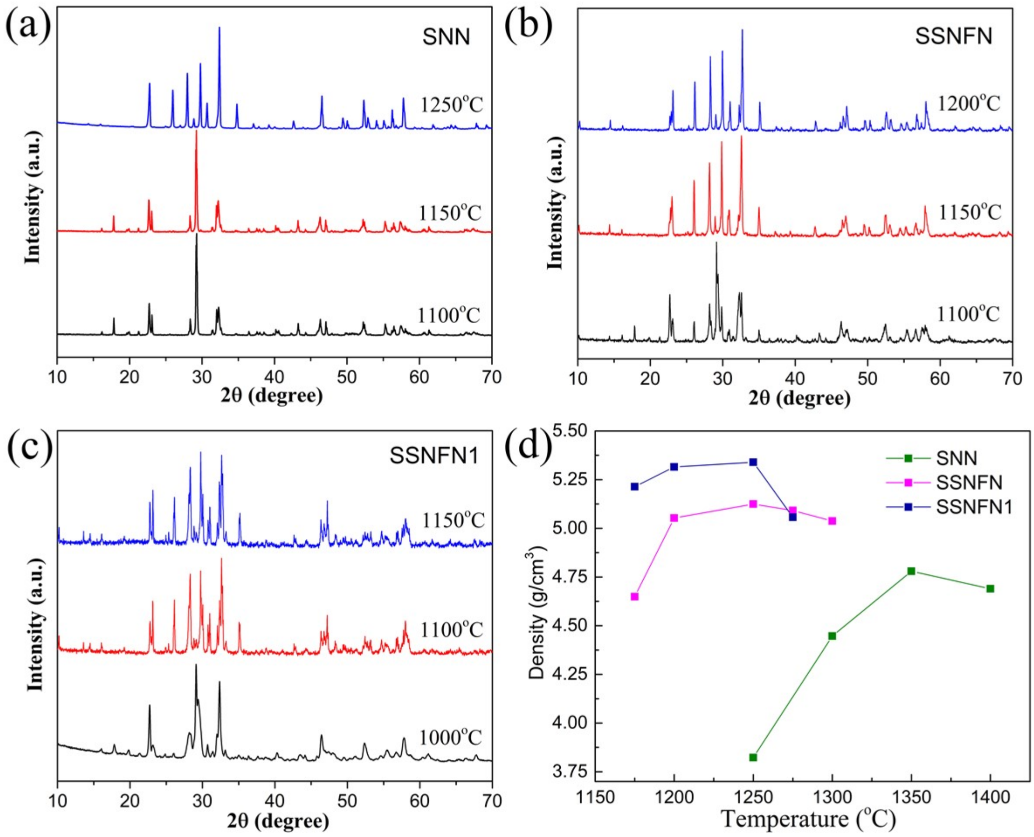

Fig. S1. XRD pattern of the powders calcined at different temperatures: (a) SNN, (b) SSNFN, (c) SSNFN1; (d) densities of the ceramics with increasing sintering temperature for SNN, SSNFN and SSNFN1.

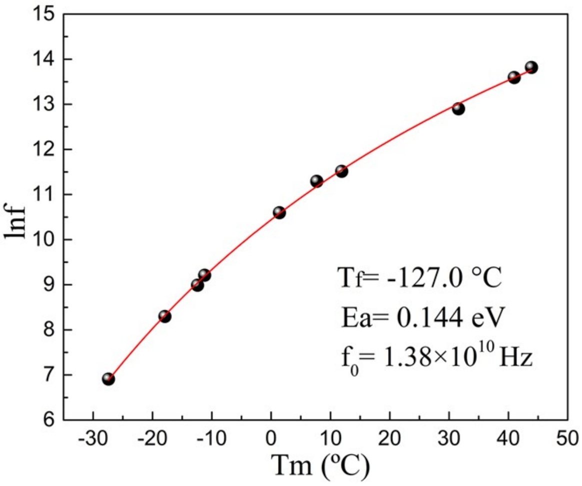

Fig. S2. The VF fitting curve of SSNFN which reveals the relationship between the dielectric permittivity peak temperature T_m and the corresponding frequency f.

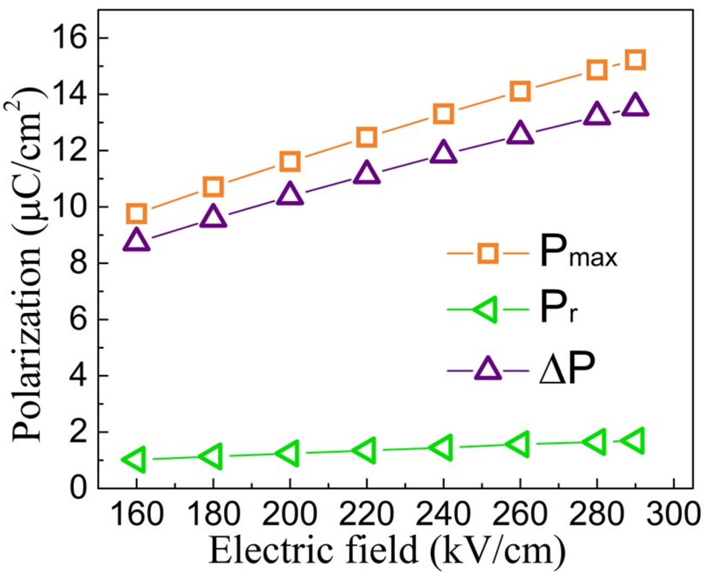

Fig. S3. The change of P_{max}, P_r and ΔP with increasing electric field, obtained from the variation of unipolar *P*-*E* loops with increasing imposed electric field at ambient temperature(Fig. 7(a)).

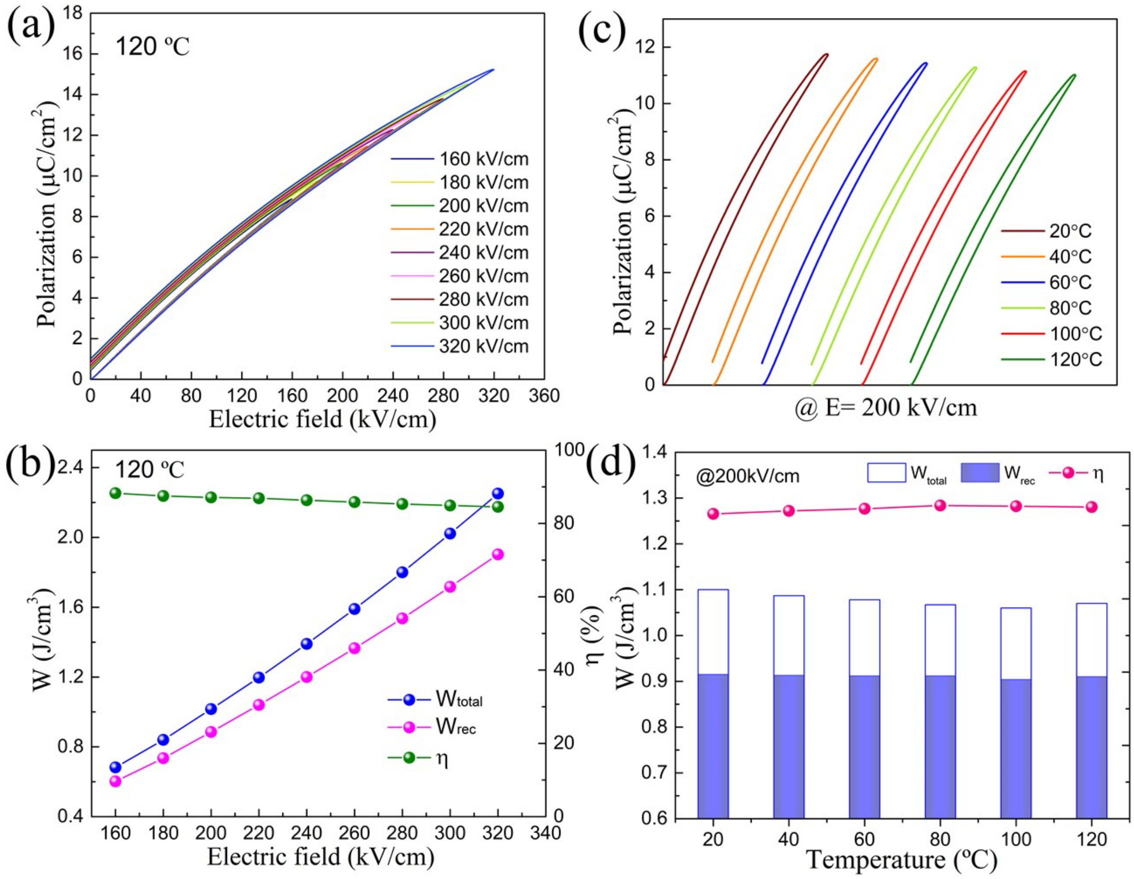

Fig. S4. Energy storage performances of the SSNFN ceramic: (a) the variation of unipolar *P*-*E* loops with increasing imposed electric field at 120 ℃; (b) the calculated total energy storage density(W_{total}), recoverable energy storage density(W_{rec}) and energy storage efficiency(η) under different electric fields at 120 ℃; (c) the temperature dependence of unipolar *P*-*E* loops from 20 to 120 °C under the electric field of 200 kV/cm; (d) the calculated W_{total}, W_{rec} and η under 200 kV/cm at different temperatures.