Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

High temperature lead-free BNT-based ceramics with stable energy storage and dielectric properties

Supporting information

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1. Hysteresis loops and current-electric-field relations

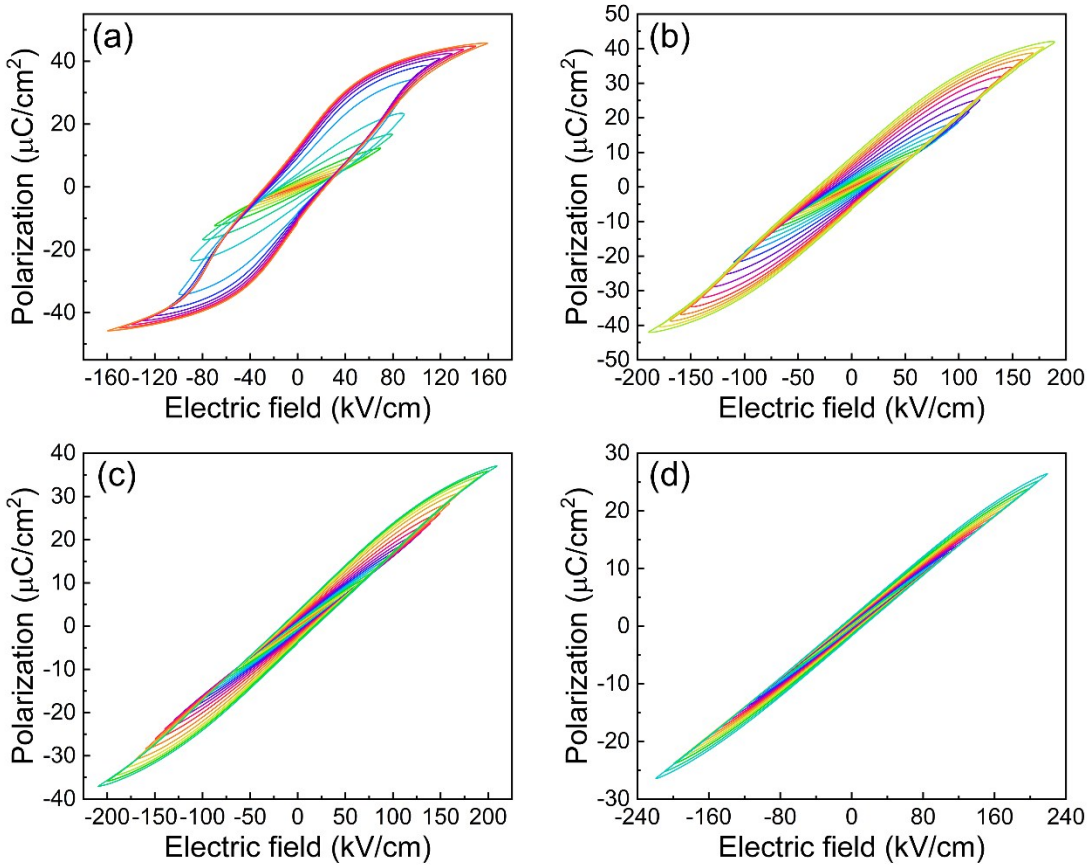

Figure S1. *P-E* loops of the (1-*x*)BNTSZ-*x*NN ceramics with *x* of (a) 0.05, (b) 0.1, (c) 0.15, (d) 0.2, measured under various applied electric fields at room temperature, 1Hz.

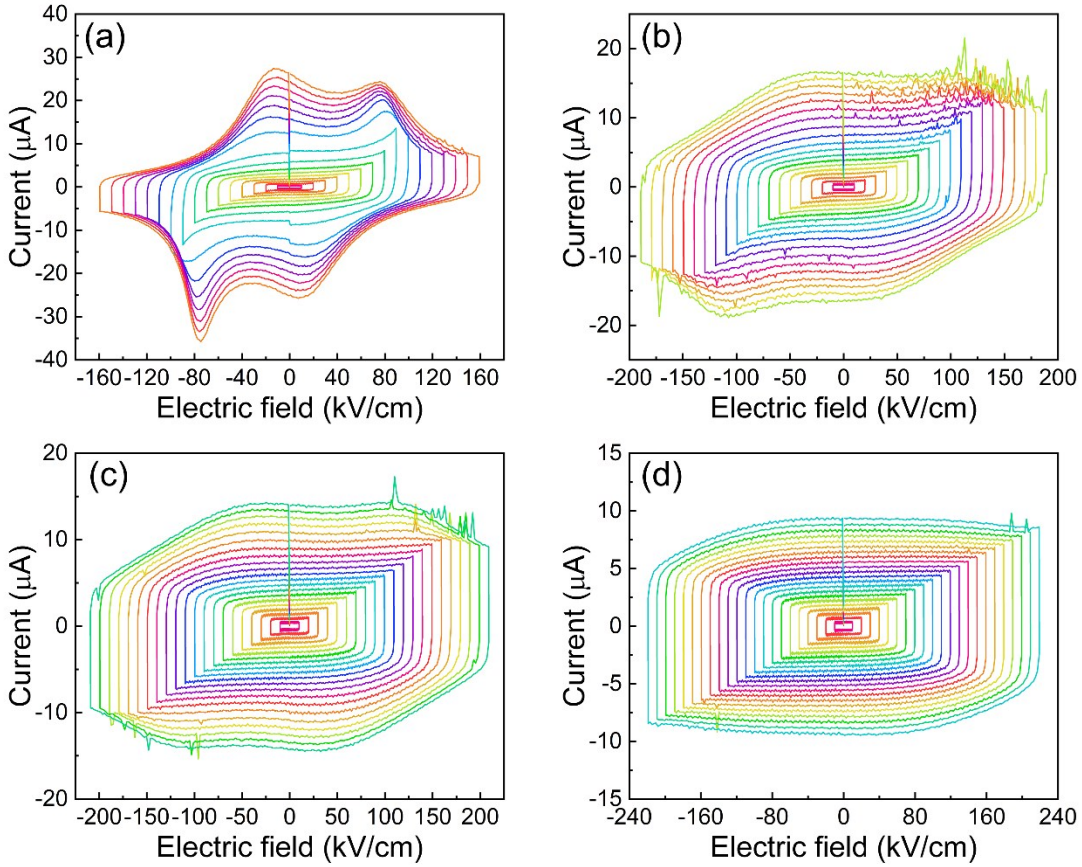

Figure S2. The current-electric-field relations corresponding to (a) to (d) of Figure S1.

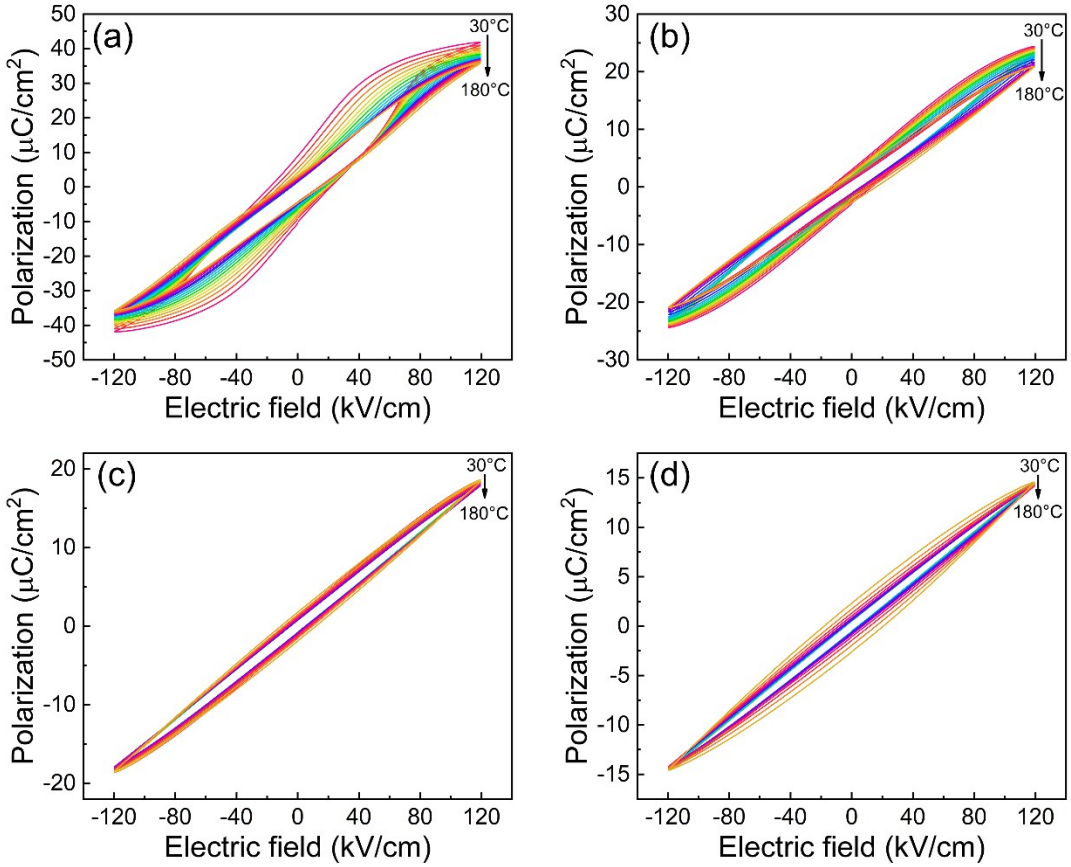

Figure S3. The temperature-dependent *P*-*E* loops of the (1-*x*)BNTSZ-*x*NN ceramics with *x* of (a) 0.05, (b) 0.1, (c) 0.15, (d) 0.2, measured at the temperature range from 30 °C to 180 °C under the applied electric field of 120 kV/cm at 1 Hz.

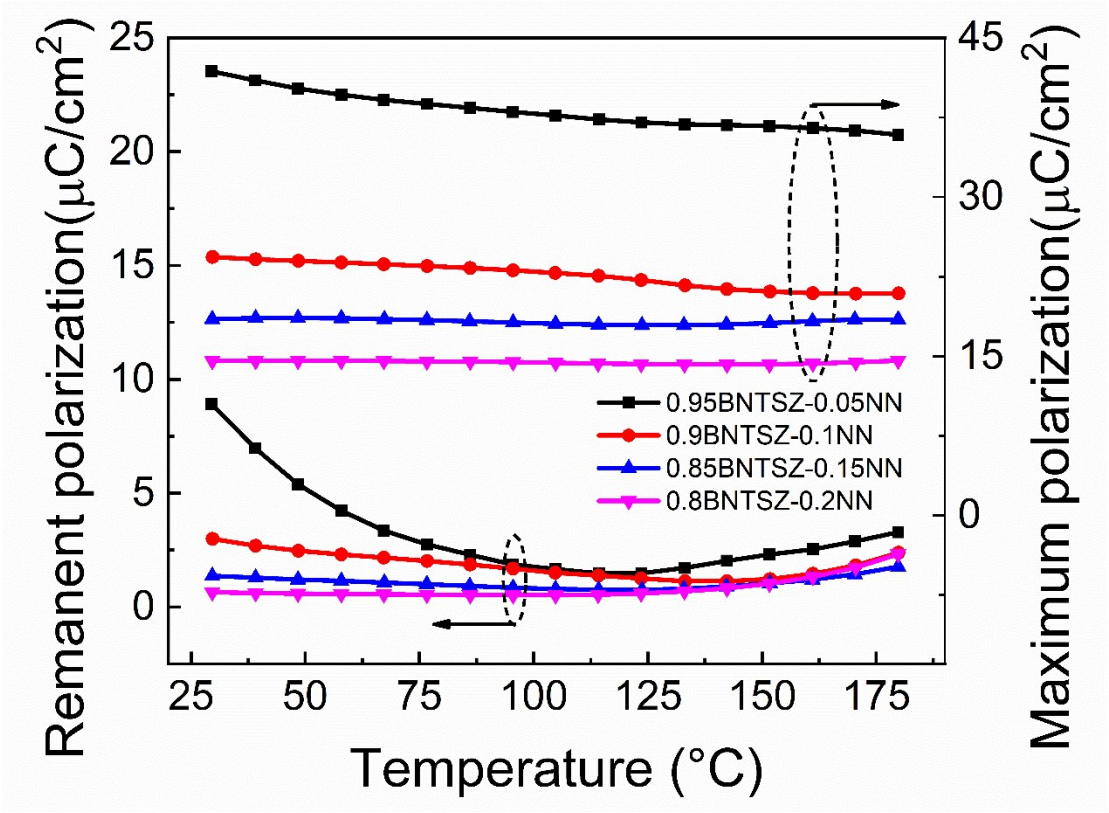

Figure S4. The remanent polarization and maximum polarizations as functions of temperature of these BNTSZ-NN ceramics extracted from Figure S3.

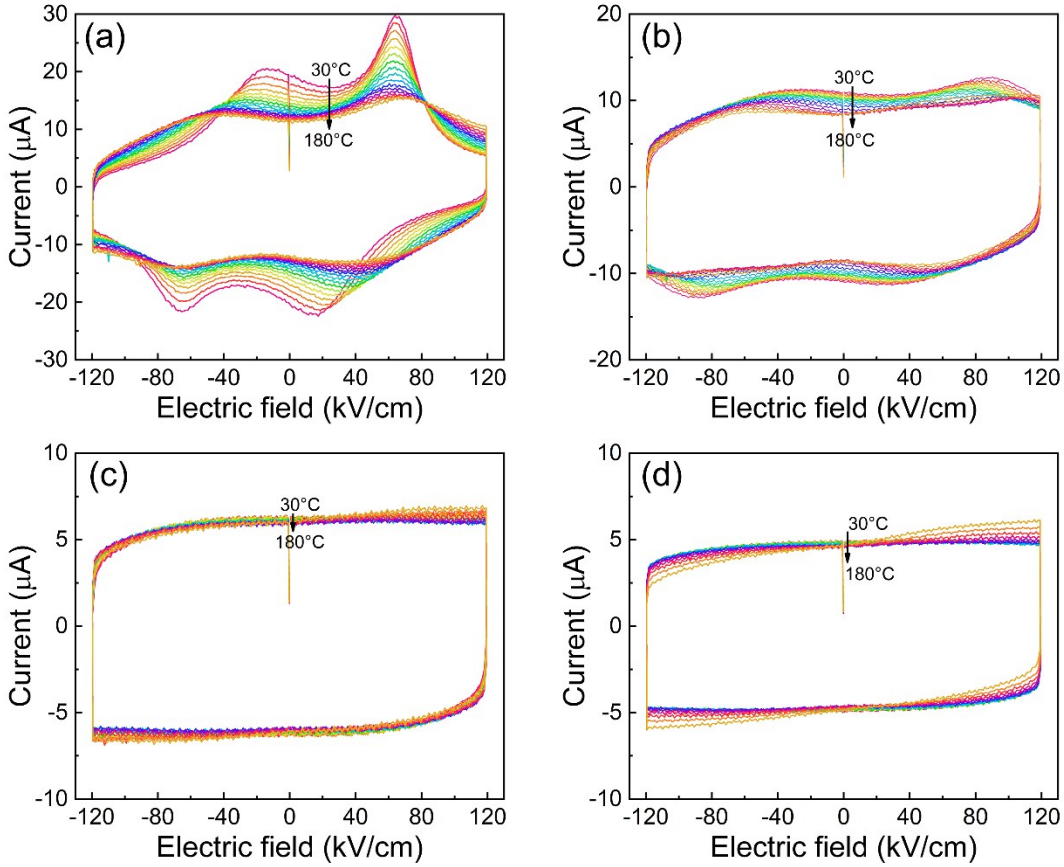

Figure S5. The current-electric-field relations corresponding to (a) to (d) of Figure S3.

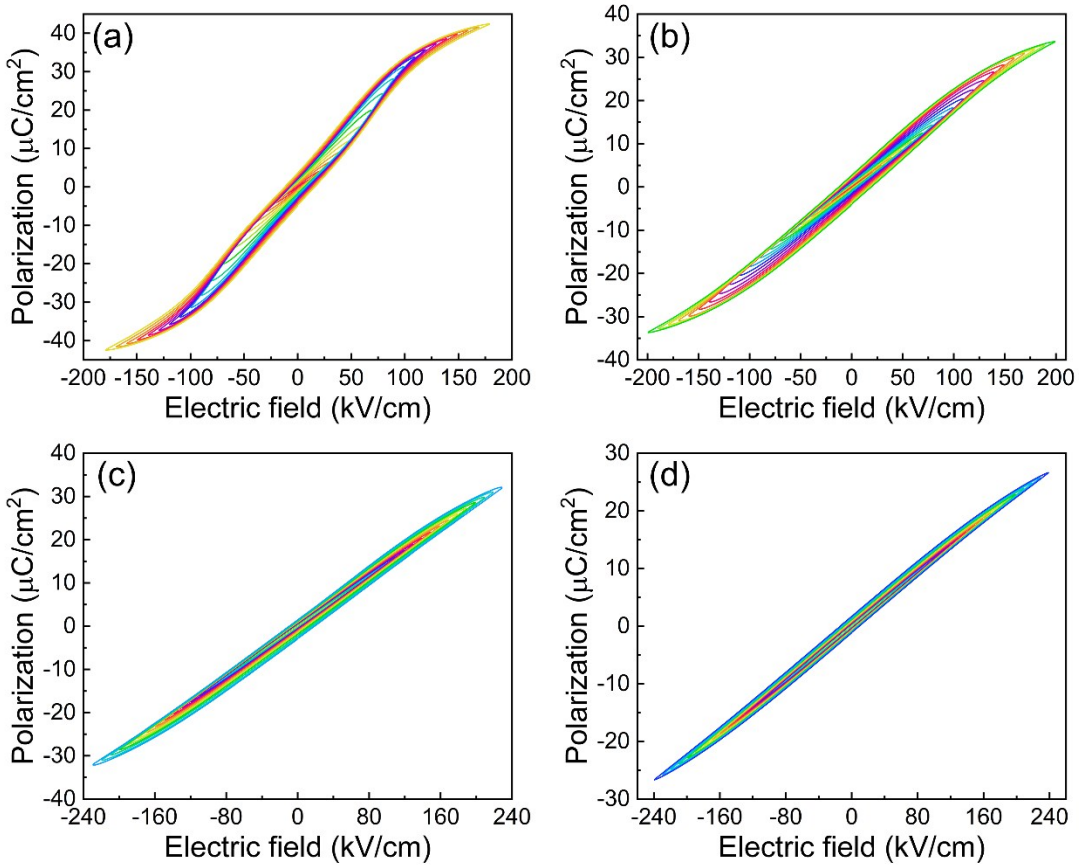

Figure S6. *P-E* loops of the (1-*x*)BNTSZ-*x*NN ceramics with *x* of (a) 0.05, (b) 0.1, (c) 0.15, (d) 0.2, measured under various applied electric fields at 120 °C, 1Hz.

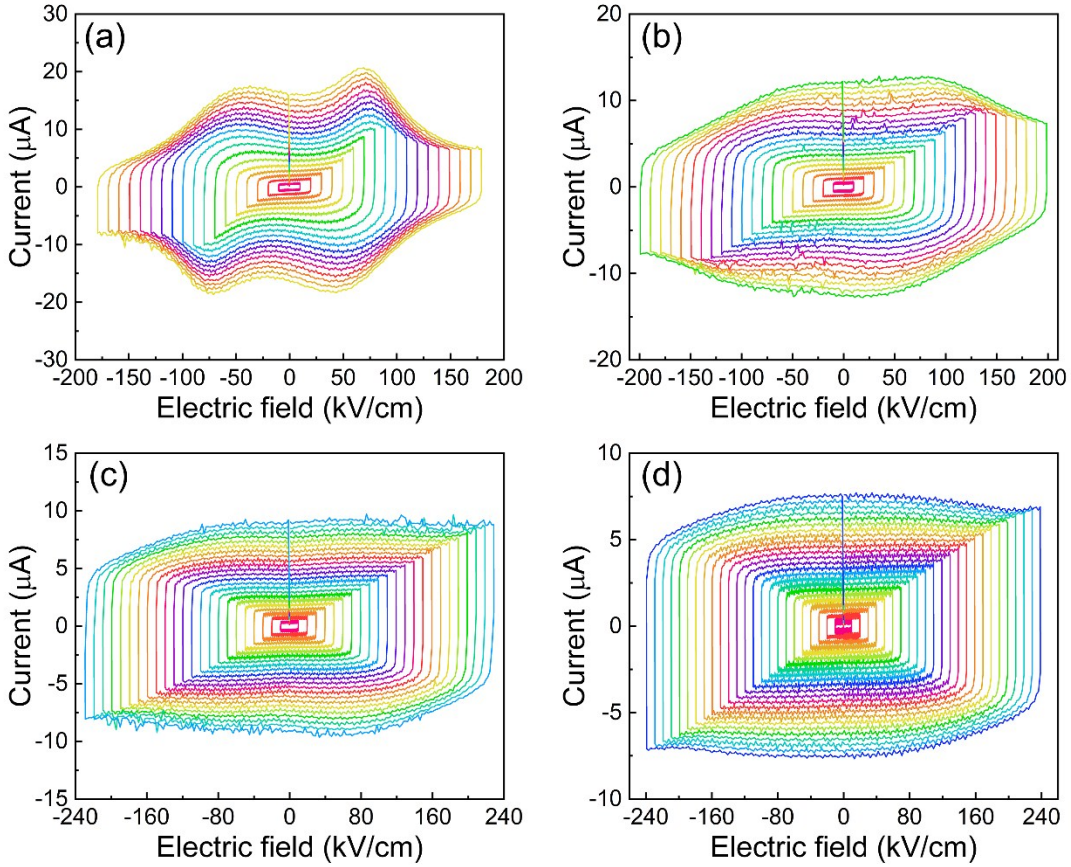

Figure S7. The current-electric-field relations corresponding to (a) to (d) of Figure S6.

2. Gaussian–Lorentzian fitting of Raman spectra

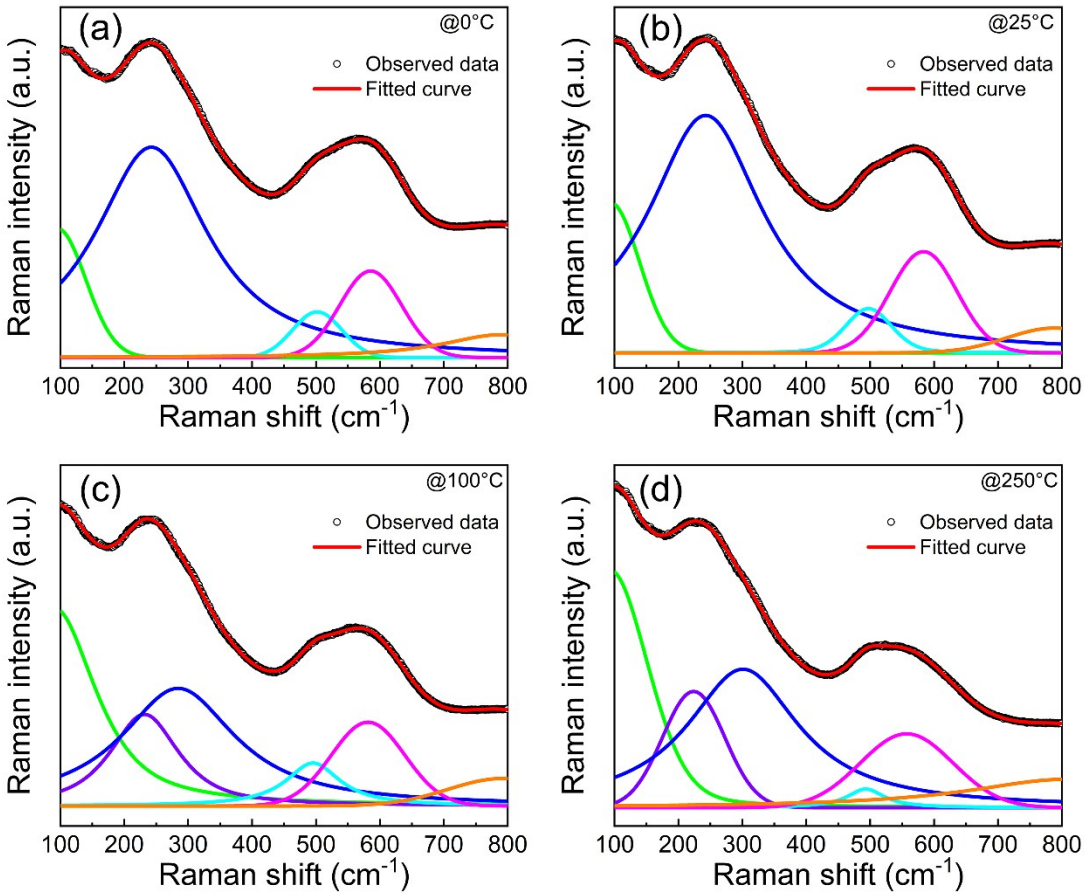

Figure S8. Fitting of Raman spectra of the 0.8BNTSZ-0.2NN ceramic according to the Gaussian–Lorentzian function at the measured temperature of (a) 0 °C, (b) 25 °C, (c) 100 °C, (d) 250 °C.