

Fig. S1. XRD patterns of (a) unpoled and (b) poled ceramics. (c-d) the Rietveld refinement results of XRD patterns for $x=0$ ceramic before and after poling.

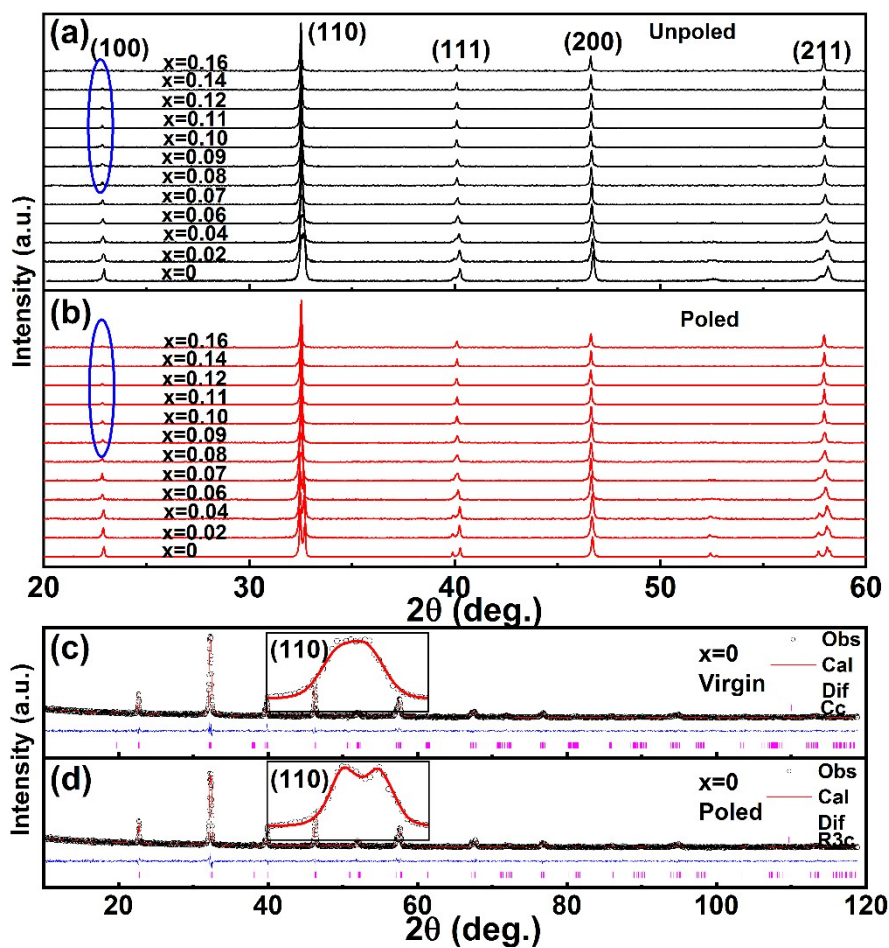


Fig. S2. Dielectric permittivity and loss tangent as a function of temperature and frequency for unpoled and poled (0.97-x)BNT-0.03BT-xNN ceramics: (a-l) $x=0-0.16$.

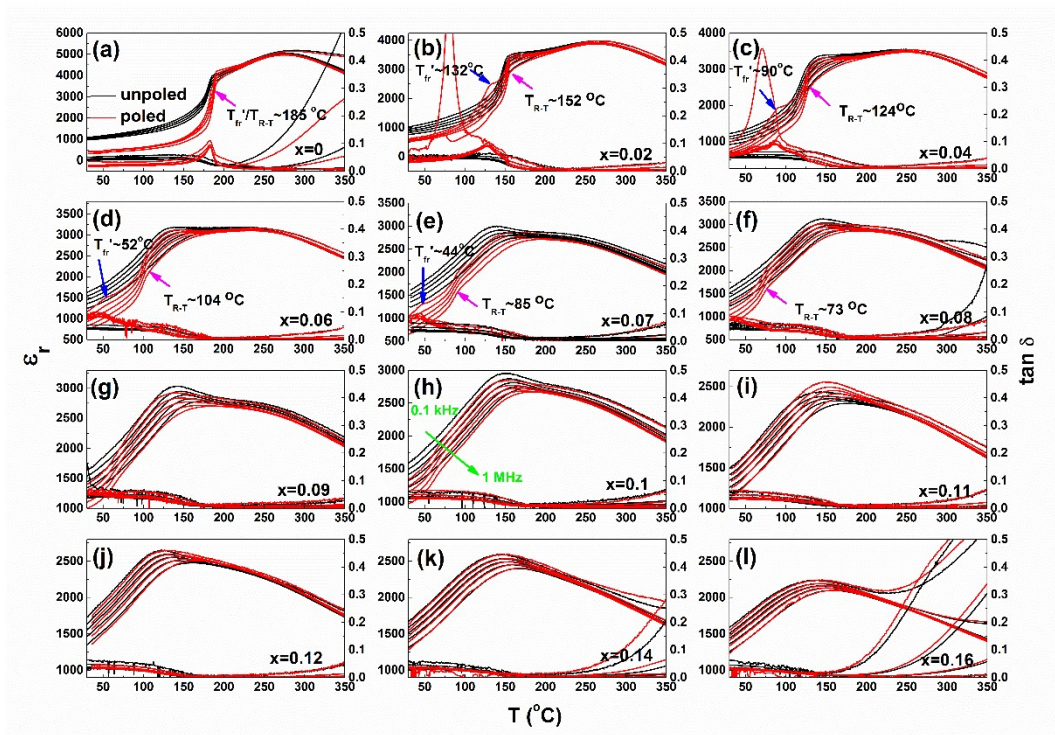
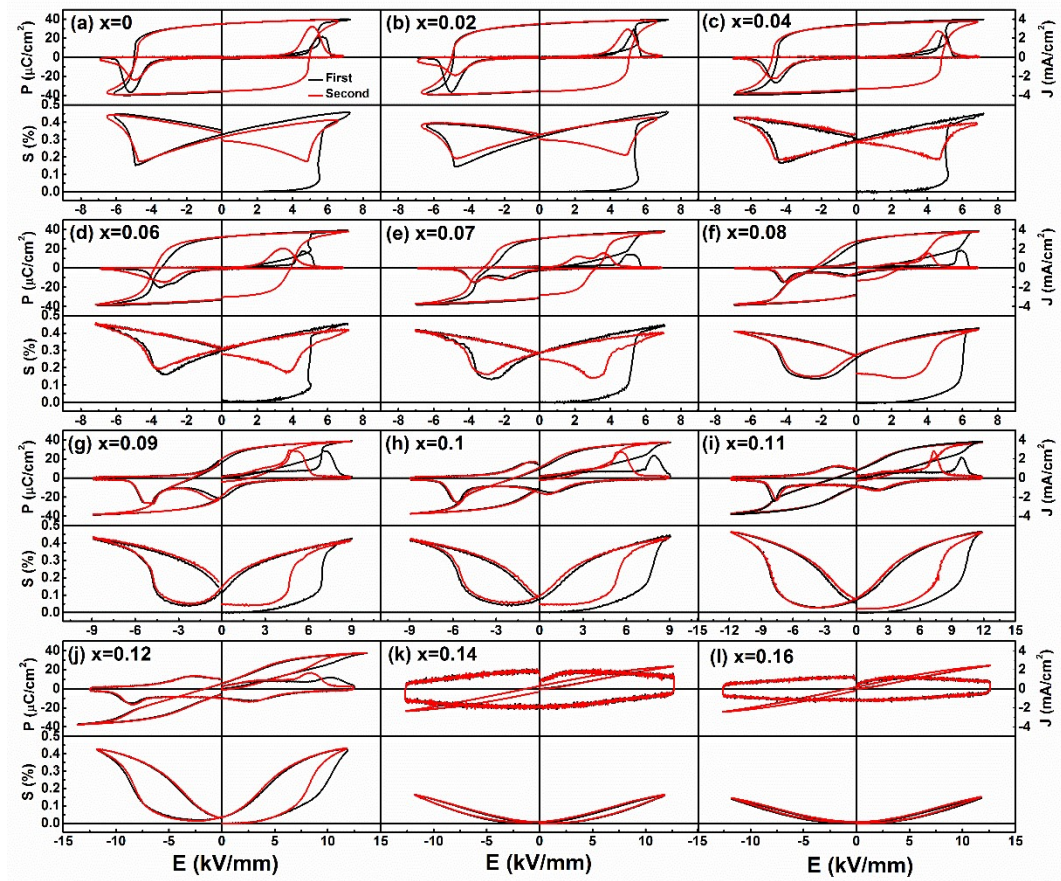


Fig. S3. P-E, S-E and the corresponding J-E curves at 2 Hz during the first and second electric cycles for $(0.97-x)\text{BNT}-0.03\text{BT}-x\text{NN}$ ceramics: (a-l) $x=0-0.16$.



Composition	Space group	Lattice parameters	V (\AA^3)	R _{wp} (%)	R _p (%)	χ^2
x=0 Virgin	Cc	a=9.6002(4) \AA , b=5.5428(3) \AA , c=5.5750(1) \AA , $\alpha=\gamma=90^\circ$ $\beta=125.094^\circ$	242.73	10.09	7.88	1.46
x=0 Poled	R3c	a=b=5.5399(4) \AA , c=13.6931(11) \AA , $\alpha=\beta=90^\circ$ $\gamma=120^\circ$	363.946	9.92	7.77	1.39

Table S1. Refined structural parameters by using Rietveld method for the x=0 ceramic before and after poling.