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

Supporting Information
Collaboratively improved energy density and efficiency in $NaNbO_3$-based lead-free relaxor ferroelectrics via enhancing antiferrodistortion

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Table S1. Comparison of the charge-discharge performances between the $x = 0.04$ ceramic and some recently reported lead-free dielectric ceramics.

Compositions	P_D (MW/cm^3)	W_D (J/cm^3)	$t_{0.9}$ (ns)	E (kV/mm)	Ref.
$Na_{0.7}Bi_{0.1}NbO_3$	62.5	0.56	155	10	1
$0.92NaNbO_3$-$0.08Bi(Mg_{0.5}Ti_{0.5})O_3$+$MnO_2$	63.7	1.17	85	20	2
$0.78NaNbO_3$-$0.22Ba(Mg_{1/3}Nb_{2/3})O_3$	47.6	0.47	45	14	3
$0.68NaNbO_3$-$0.32(Bi_{0.5}Li_{0.5})TiO_3$	133.7	3.83	70	30	4
$0.9NaNbO_3$-$0.1Bi(Ni_{1/2}Sn_{1/2})O_3$	100.5	1.11	43.6	20	5
$0.85K_{0.5}Na_{0.5}NbO_3$-$0.15(K_{0.7}Bi_{0.3})NbO_3$	47.7	-	-	12	6
$0.9(K_{0.5}Na_{0.5})NbO_3$-$0.1Bi(Zn_{2/3}Nb_{1/3})O_3$	154	2.5	-	25	7
$0.91K_{0.5}Na_{0.5}NbO_3$-$0.09SrZrO_3$	-	1.41	126	25	8
Mn-doped $Ag_{0.97}La_{0.01}NbO_3$	390	-	-	15	9
$Ag_{0.97}Nd_{0.01}NbO_3$	54	0.56	59.2	18	10
$0.85Bi_{0.5}K_{0.5}TiO_3$-$0.15Ba(Mg_{1/3}Nb_{2/3})O_3$	-	0.49	120	14	11
$0.7(Na_{0.5}Bi_{0.5})_{0.7}Sr_{0.3}TiO_3$-$0.3Sr(Ti_{0.85}Zr_{0.15})O_3$	41.2	1.17	125.6	12	12
$0.8Bi_{0.5}Na_{0.5}TiO_3$-$0.2SrNb_{0.5}Al_{0.5}O_3$	131.75	-	-	30	13
$0.93Na_{0.5}Bi_{0.5}TiO_3$-$0.07LiTaO_3$	22	0.52	100	10	14
$0.75Bi_{0.58}Na_{0.42}TiO_3$-$0.25SrTiO_3$	147.04	1.9	118	30	15
$0.5Na_{0.5}Bi_{0.5}TiO_3$-$0.5Sr_{0.85}Sm_{0.1}TiO_3$	188.6	1.5	69	18	16
$0.6(Bi_{0.5}K_{0.5})TiO_3$-$0.3BaTiO_3$-$0.1NaNbO_3$	103.2	2.40	130	22	17
$0.57BiFeO_3$-$0.33BaTiO_3$-$0.10NaNbO_3$	-	2.4	97	20	18
$0.70(0.67BiFeO_3$-$0.33BaTiO_3)$-$0.30(Sr_{0.7}Bi_{0.2})TiO_3$	14.46	0.18	250	10	19
$0.7Ba_{0.85}Ca_{0.15}Zr_{0.1}Ti_{0.9}O_3$-$0.3Sr_{0.7}Bi_{0.2}TiO_3$	237.83	1.97	103	30	20
$0.62Sr_{0.7}Bi_{0.2}TiO_3$-$0.38K_{0.5}Bi_{0.5}TiO_3$	49.5	1.81	360	22	21
$Sr_{0.35}Bi_{0.35}K_{0.25}TiO_3$+$Er_2O_3$	39.6	1.51	325	20	22
$Ca_{0.5}Sr_{0.5}Ti_{0.85}Zr_{0.15}O_3$	17.6	0.19	22	12	23
$0.35BiFeO_3$-$0.65SrTiO_3$	280	3.3	166	35	24
$x = 0.04$	340	4.5	27	37.5	This work

Table S2. Refined structural parameters of (0.9-x)NN-0.1BT-xBF ceramic powders.

x	Space group	Lattice parameters	V (Å^3)	R_{wp} (%)	R_p (%)	χ^2
0	$P2_1ma$	a=5.4901(2), b=7.7609(2) Å, c=5.4890(1) Å, α=β=γ=90°	233.876(9)	5.90	3.92	3.81
0.04	$P2_1ma$	a=5.4995(2), b=7.7704(2) Å, c=5.4957(1) Å, α=β=γ=90°	234.852(12)	5.54	3.87	3.19

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