

Erratum to: Structural and electrical properties of Ho³⁺-modified Pb(Zn_{1/3}Nb_{2/3})O₃–9PbTiO₃ single crystals

Zengzhe Xi¹ · Amin Han¹ · Pinyang Fang¹ · Wei Long¹ · Xiaojuan Li¹ · Qianqian Bu¹

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The original version of the article contains errors about the temperature dependence of permittivity of PZN–9PT single crystals. The correct results are showed as follows:

T_{R-T} and T_C of PZN–9PT single crystals were 363 and 447 K, respectively. The diffuse factor δ_A of PZN–9PT was 26.03 K (Table 2; Figs. 4, 5).

According to the correct temperature dependence of dielectric permittivity of the PZN–9PT single crystals, the changed sentences of the abstract and conclusion are as follows:

Revised Abstract: Ho³⁺-modified Pb(Zn_{1/3}Nb_{2/3})O₃–9PbTiO₃ (PZN–9PT) single crystals were grown through a flux method. Phase structure and microstructural morphology of the as-grown single crystals were performed by X-ray diffraction analysis and scanning electron

microscopy. The refinement of the lattice parameters were obtained by the Rietveld method. The electrical properties of PZN–9PT single crystals were improved significantly by the modification of Ho³⁺ ions. The rhombohedral–tetragonal phase transition temperature, coercive field at 15 kV cm⁻¹, and remnant polarization of Ho³⁺-modified PZN–9PT single crystals were increased by 12 K, 2.4 kV cm⁻¹, and 7.5 μC cm⁻², respectively (i.e., 375.45 K, 5.9 kV cm⁻¹, and 38.40 μC cm⁻², respectively). Furthermore, Lorentz-type law was used to describe the dielectric relaxor behavior of the as-grown single crystals.

Revised Conclusion: Ho³⁺-modified PZN–9PT single crystals were successfully grown by using the flux method. The as-grown single crystals had single perovskite structure. The enhancement of diffused phase transition and frequency dispersion was observed in the Ho³⁺-modified PZN–9PT single crystals. The diffuse factor δ_A ranged

Table 2 The fitting result for the as-grown single crystals with the Lorentz-type Law at frequency of 100 kHz

Crystals	T_{max} (K)	ϵ_{max}	T_A (K) $T > T_{max}$	ϵ_A	δ_A (K)
PZN–9PT	447	39,051	438.54	42,149.46	26.03
Ho modified PZN–9PT	448.45	13,635	427.08	15,527.92	48.34

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✉ Zengzhe Xi
Hamin27@163.com; zzhxi@xatu.edu.cn

¹ Shaanxi Key Laboratory of Photoelectric Functional Materials and Devices, School of Materials and Chemical Engineering, Xi'an Technological University, Xi'an 710021, China

Fig. 4 Temperature dependence of dielectric permittivity and loss at different frequencies (100 Hz–100 kHz) for the as-grown single crystals: **a** PZN–9PT crystals, **b** Ho³⁺-modified PZN–9PT crystals, respectively

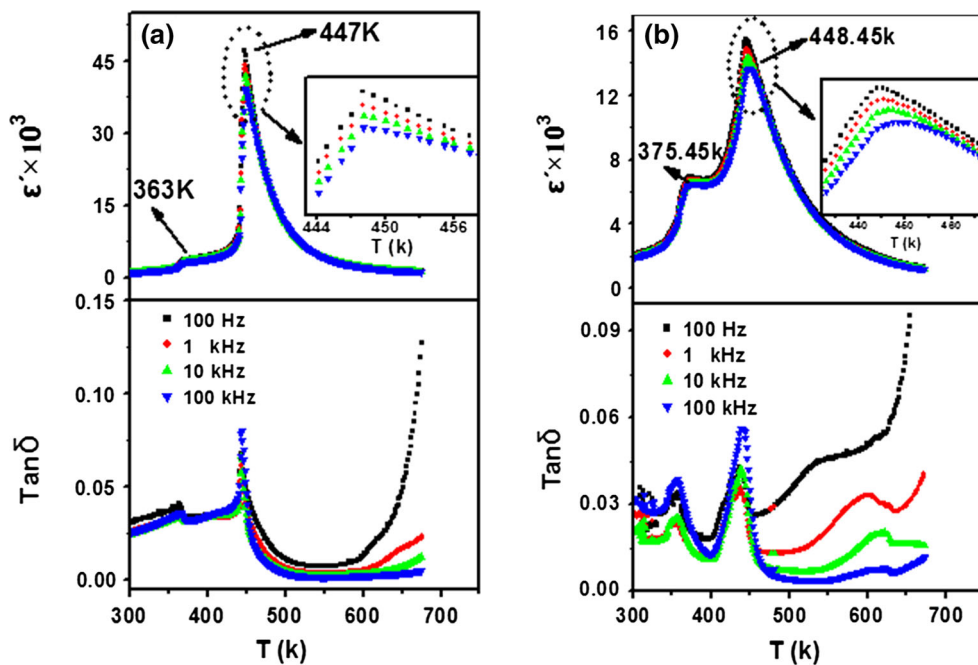
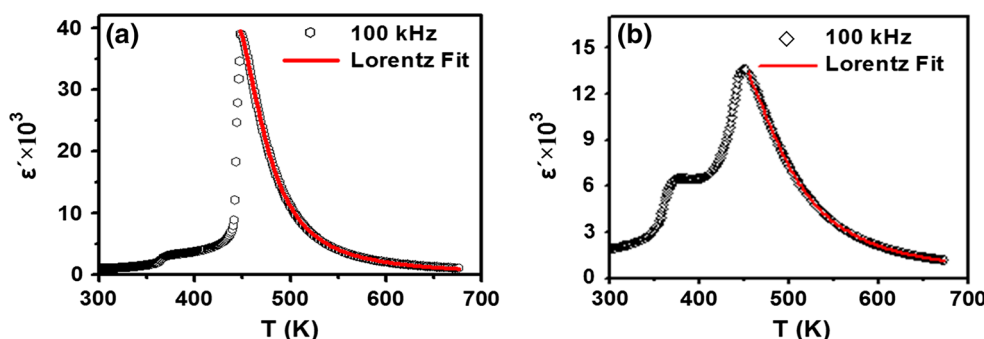


Fig. 5 Dielectric permittivity as a function of temperature for the as-grown single crystals at 100 kHz: **a** PZN–9PT crystals, **b** Ho³⁺-modified PZN–9PT crystals. The *solid line* and the *symbol* stand for the fitting to the Lorentz-type law and the experimental data, respectively



from 26.03 to 48.34 K due to the modification of Ho³⁺ ions, indicating the Ho³⁺-modified PZN–9PT single crystals exhibited more obvious relaxor behavior. The T_{R-T} of the PZN–9PT single crystals were increased by about 12 K

under the modification of Ho³⁺ ions, i.e., approximately 375.45 K. The P_r ($\sim 38.40 \mu\text{C cm}^{-2}$) and E_C ($\sim 5.9 \text{ kV cm}^{-1}$) of the single crystals were higher than those of PZN–9PT crystals.