

## Supplementary Information

### Investigation of BiFeO<sub>3</sub>-BaTiO<sub>3</sub> lead-free piezoelectric ceramics with nonstoichiometric bismuth

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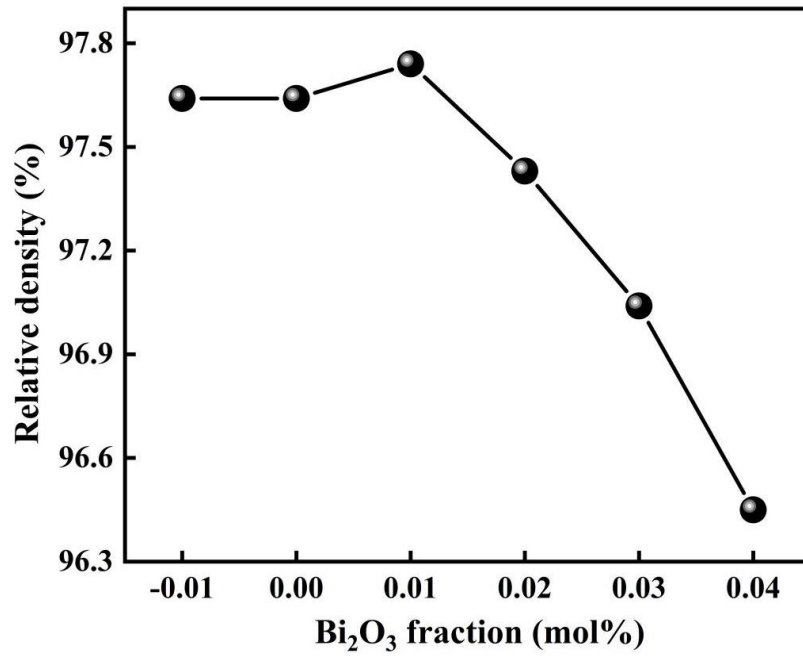
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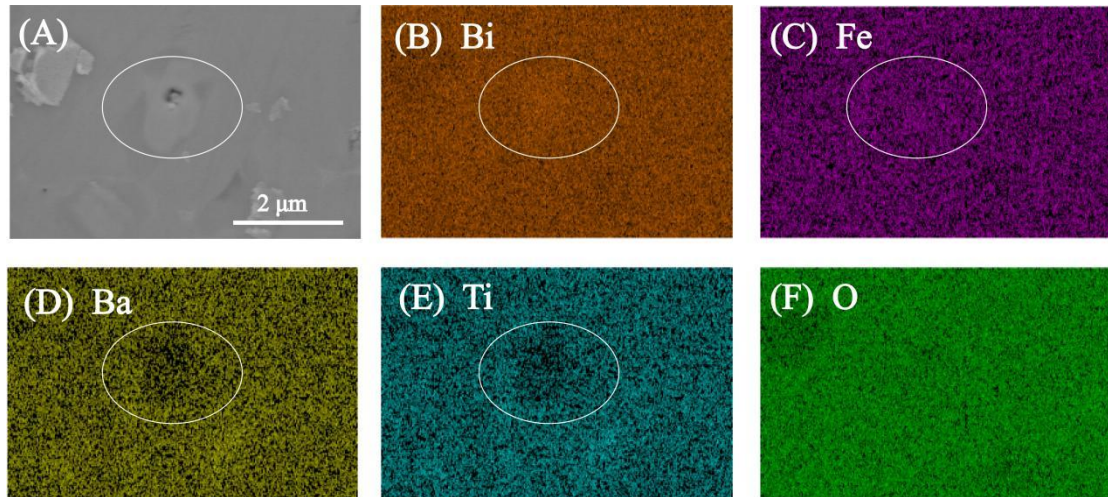
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**Figure S1.** The densities of the  $B_{1+x}F$ -BT ceramics.



**Figure S2.** (A) BSE images of  $B_{0.99}F$ -BT ceramic and EDS elemental mapping results (B) Bi, (C) Fe, (D) Ba, (E) Ti and (F) O.



**Figure S3.** (A) BSE images of  $B_{1.03}F$ -BT ceramic and EDS elemental mapping results (B) Bi, (C) Fe, (D) Ba, (E) Ti and (F) O.

