

Electronic Supplementary Material (ESI) for Nanoscale.  
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# Electronic Supplementary Information for “Strong anisotropy of ferroelectricity in lead- free bismuth silicate”

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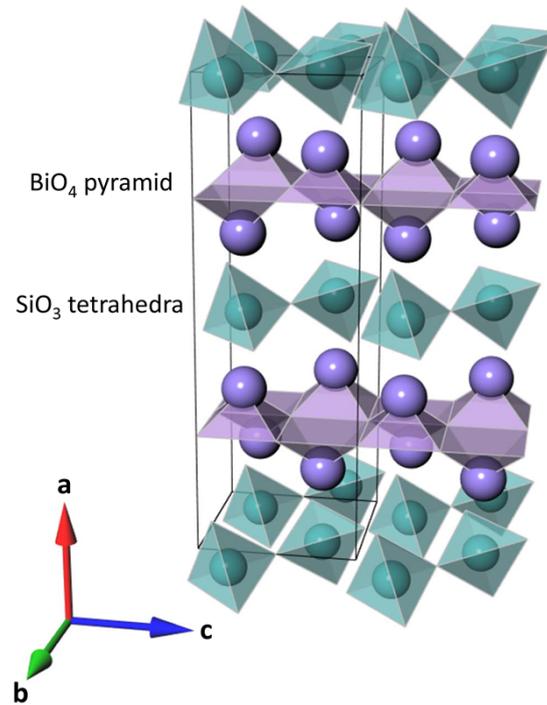
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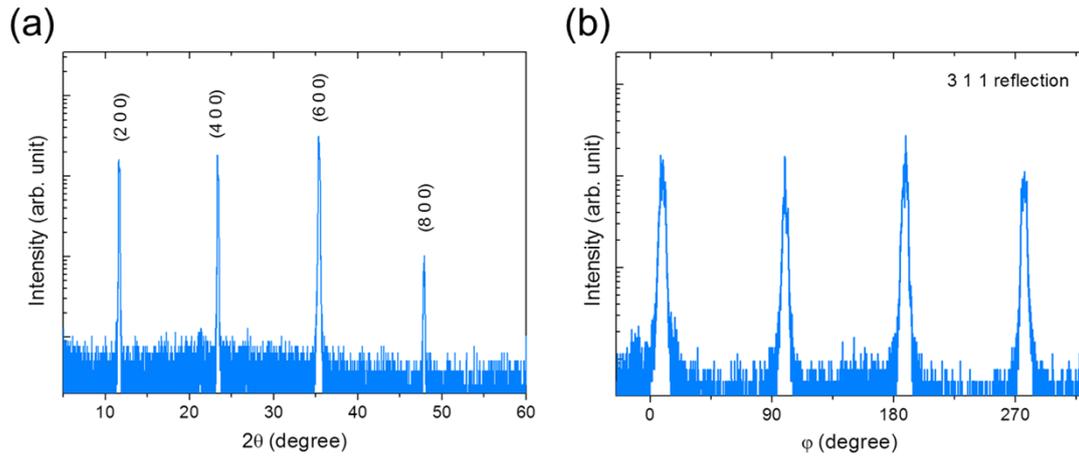
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**Figure S1.** Schematic drawing of crystal structure of  $\text{Bi}_2\text{SiO}_5$ .

Schematic drawing of crystal structure of  $\text{Bi}_2\text{SiO}_5$  (BSO) is illustrated in Figure S1. BSO is composed by stacking  $[\text{Bi}_2\text{O}_2]^{2+}$  and  $[\text{SiO}_3]^{2-}$  layers and has strong cleavage plane along the  $a$ -axis.



**Figure S2.** (a) XRD pattern of cleaved BSO sample by gonio-scan with Bragg-Brentano geometry. (b)  $\phi$ -scan of 3 1 1 reflection for cleaved BSO sample.

The cross-plane and in-plane orientations of mechanically cleaved BSO samples were characterized by gonio- and  $\phi$ -scans using x-ray diffractometer with monochromatized  $K_{\alpha 1}$  line (Rigaku Smartlab), respectively. In Figure S2(a), cleaved BSO sample showed only ( $h\ 0\ 0$ ) reflection without any secondary phase. The single crystallinity was investigated by  $\phi$ -scan of 3 1 1 reflection for BSO sample. As shown in Figure S2(b), four azimuthal peaks, which are separated by about 90 degrees each other, prove the single crystallinity of BSO sample.