

Electronic supplementary information

Evaluation of ferroelectricity in a distorted wurtzite-type structure of Sc-doped LiGaO₂

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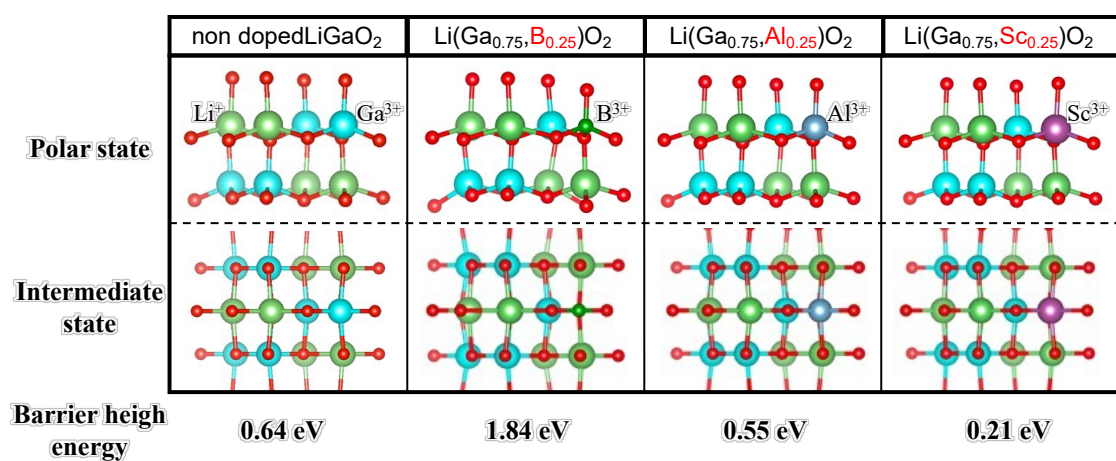


Figure S1. The polar and intermediate states of non-doped and doped LiGaO_2 with B, Al, Sc. The calculated barrier height energies are also shown.

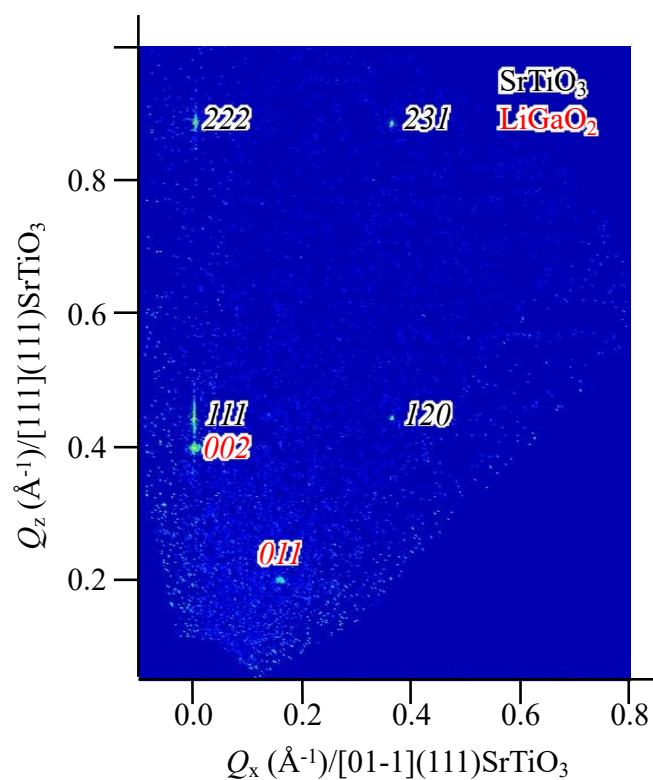


Figure S2. The XRD result of 2D reciprocal space mapping for a $\text{LiGaO}_2/(\text{111})\text{SrTiO}_3$ film. The reflection index of SrTiO_3 and LiGaO_2 are written by black and red colors,

respectively.

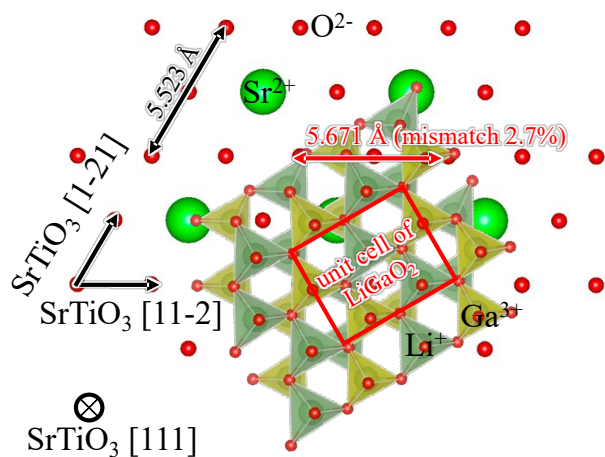


Figure S3. The relationship of crystal growth between (001)LiGaO₂ and (111)SrTiO₃. The LiGaO₂ unit cell is well matched with a lattice mismatch of 2.7%.

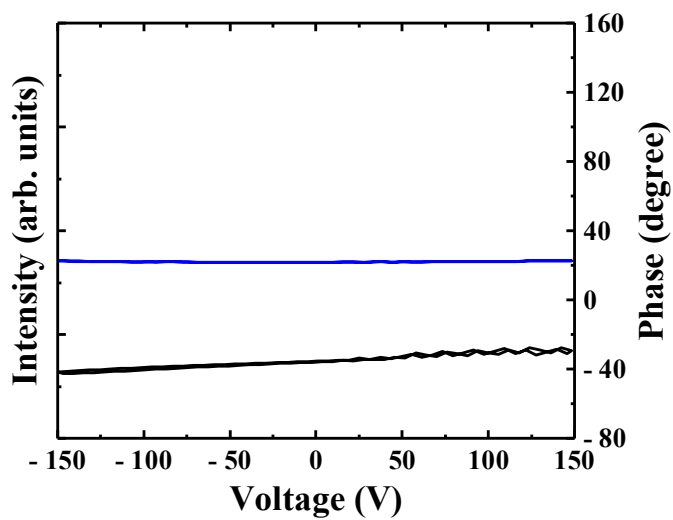


Figure S4. The PFM result for non-doped LiGaO₂ epitaxial thin film.

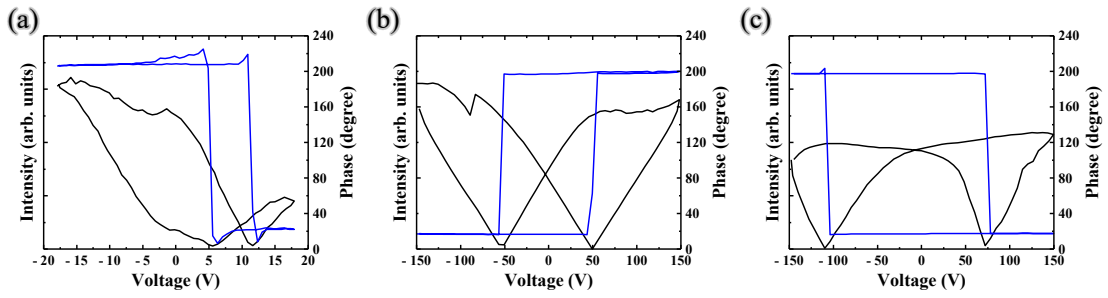


Figure S5. The PFM results measured at three different points for 20% Sc doped LiGaO₂ epitaxial thin film. The cross points of amplitude signal corresponding to polarization switching voltage are different depending on the measurement points.

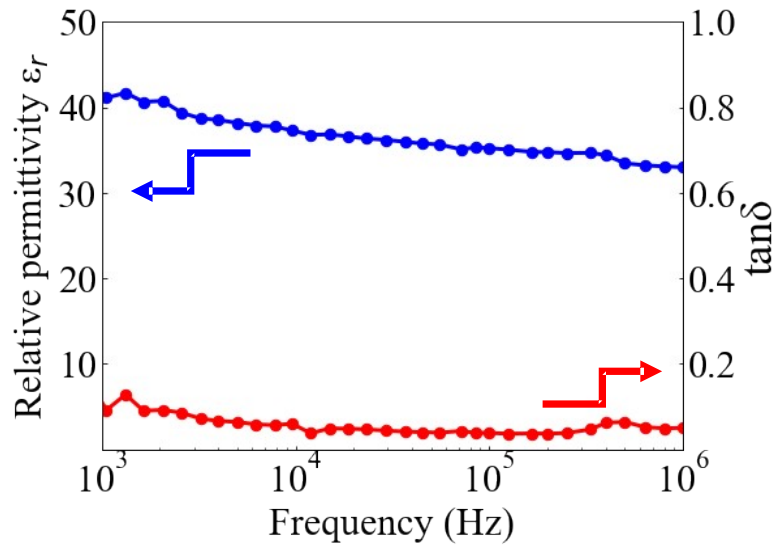


Figure S6. The frequency dependence of relative permittivity and dielectric loss of Sc-doped LiGaO₂ epitaxial thin film.