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Erratum: "Impact of Symmetry on the Ferroelectric Properties of CaTiO₃ Thin Films" (Applied Physics Letters 106:162904 (2015))

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Erratum: “Impact of symmetry on the ferroelectric properties of CaTiO_3 thin films” [Appl. Phys. Lett. 106, 162904 (2015)]

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There is a typo of the space group. All the $Pnmb$ should be $Pbnm$ (or $Pnma$). So the Glazer notation should be changed to $(a^-a^-c^+)$ for $Pbnm$ space group on page 4 of the article.¹ We have also noticed that the thermodynamic analysis of CaTiO_3 thin film is not correct. The films are $(001)_{\text{PC}}$ -oriented or (101) -oriented. Therefore, there is no need to rotate the coordinate system (on page 4 of the article¹). By applying the thin film boundary condition, i.e., $\epsilon_{11} = \epsilon_{22} = \epsilon_s$, $\epsilon_{21} = \epsilon_{12} = 0$, $\sigma_{13} = \sigma_{23} = \sigma_{33} = \sigma_{31} = \sigma_{32} = 0$, and minimizing the total free energy with respect to epitaxial strain, ϵ_s , a temperature-strain phase diagram is determined. All the strain and stress components should be in the original coordinate system. The corrected phase diagrams are shown in the figures below. For LSAT phase diagrams (Figs. 5(a) and 5(b)), the ferroelectric transition is better described using the $Fmm2$ phase because the calculated phase boundary is much closer to the experimental value than using the $Aba2$ phase. The NGO phase diagram, as shown in Fig. 5(c), is essentially the same as Gu's orthorhombic $Pbnm$ CaTiO_3 film calculation,² which is also $(001)_{\text{PC}}$ -oriented. All the other analysis and conclusions in the article¹ are not affected. We apologize to the readers for the confusion that might have been caused. The authors would like to thank Ryan Haislmaier for pointing out the mistake.

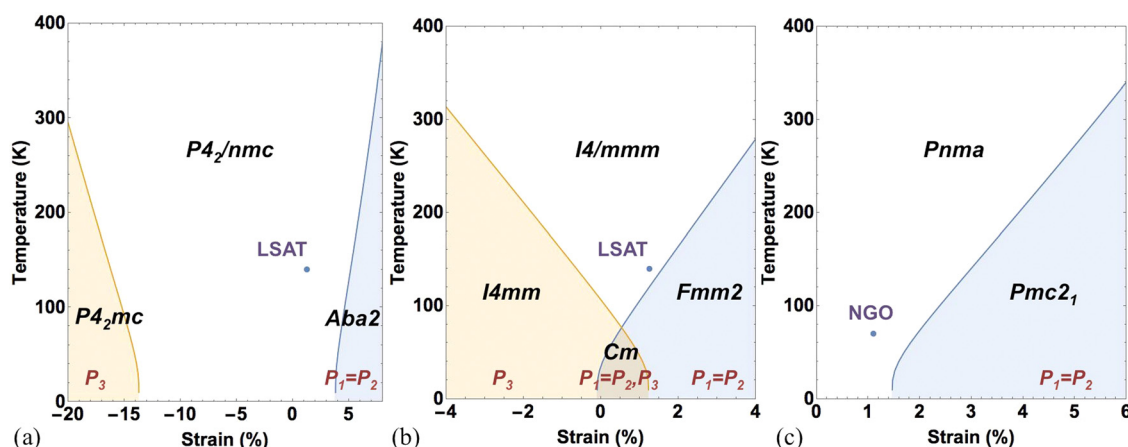


FIG. 5. The calculated temperature-strain phase diagram for CaTiO_3 films grown on (a) and (b) LSAT and (c) NGO substrates. The corresponding measured experimental transition temperatures are indicated on the phase diagrams. P_1 and P_2 are in-plane polarization component and P_3 is out-of-plane component. The polarization component not shown for a specific phase is zero.

¹M. D. Biegalski, L. Qiao, Y. Gu, A. Mehta, Q. He, Y. Takamura, A. Borisevich, and L.-Q. Chen, *Appl. Phys. Lett.* **106**, 162904 (2015).

²Y. Gu, K. Rabe, E. Bousquet, V. Gopalan, and L.-Q. Chen, *Phys. Rev. B* **85**, 064117 (2012).

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