Erratum: Phase transitions and strain-induced ferroelectricity in $SrTiO_3$ epitaxial thin films [Phys. Rev. B 61, R825 (2000)]

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Some of the predicted phase states and ranges of their stability in $SrTiO_3$ epitaxial thin films should be modified because an error was revealed later in our numerical calculations. Namely, the spontaneous polarization **P** in the orthorhombic FOI and FOIII phases is oriented along the in-plane face diagonal of the prototypic cubic cell ($|P_1|=|P_2|\neq 0, P_3=0$), but not along the edge of this cell. An additional orthorhombic phase state (FOIV) is possible in $SrTiO_3$ films, where both the polarization **P** and the order parameter **q** are parallel to the same in-plane face diagonal of the prototypic cubic cell ($|P_1|=|P_2|\neq 0$, $P_3=0; |q_1|=|q_2|\neq 0$, $q_3=0$). These changes are summarized in the modified Table I. The corrected misfit strain-temperature phase diagram of $SrTiO_3$ films grown on cubic substrates is shown in Fig. 1. This diagram essentially coincides with the former diagram, except for the splitting of the stability range of the FOII phase into the parts corresponding to the FOII and FOIV phases. Therefore, the main conclusions of our paper remain valid.

There is also a misprint in Eq. (2), where the term $t_{31}^{*}P_3^2(q_1^2+q_2^2)$ must actually have a negative sign.

TABLE I. Nonzero components of the polarization **P** and the structural parameter **q** in different stable phases forming in $SrTiO_3$ epitaxial thin films grown on cubic substrates.

Phase	HT	ST	SO	FTI	FTII	FOI	FOII	FOIII	FOIV
P				P_3	P_3	$\|P_1\|=\|P_2\|$	P_1 (or P_2)	$\|P_1\|=\|P_2\|$	$\|P_1\|=\|P_2\|$
q		q_3	q_1 (or q_2)		q_3		q_2 (or q_1)	q_3	$\|q_1\|=\|q_2\|$

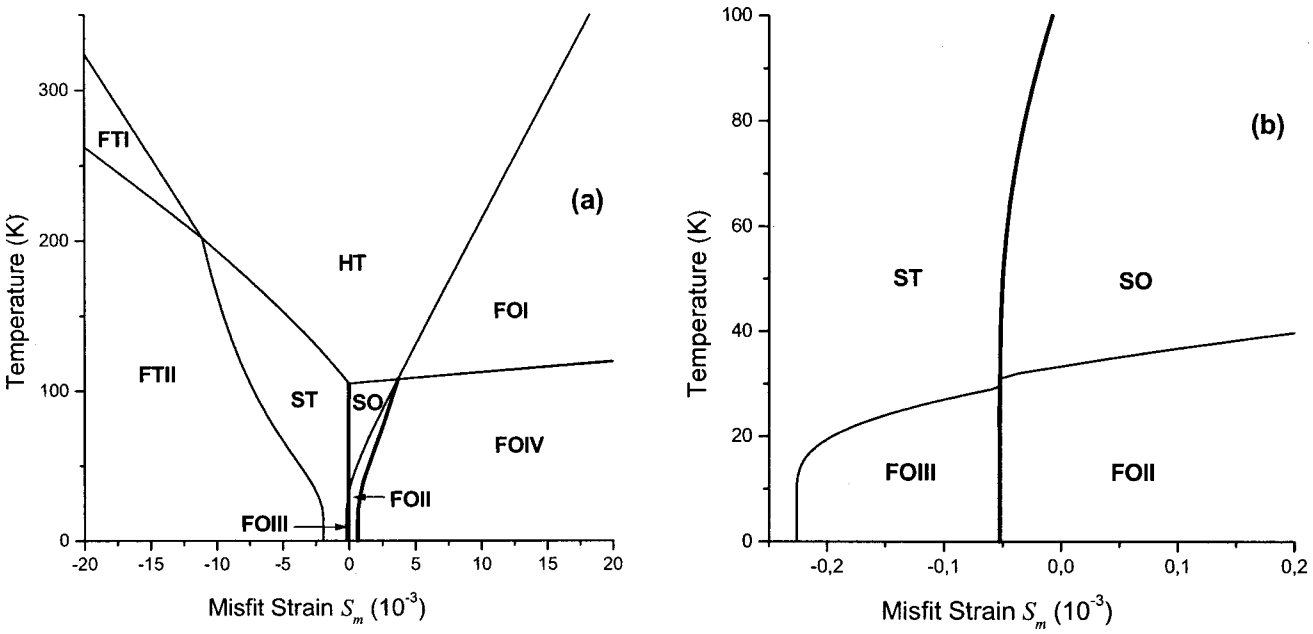

FIG. 1. Phase diagram of (001)-oriented single-domain $SrTiO_3$ thin films epitaxially grown on different cubic substrates (a) and its enlarged section near zero misfit strain (b). The second- and first-order phase transitions are shown by thin and thick lines, respectively.

