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Structural and Electrical Properties of 0.6 $Pb(Mg_{1/3}Nb_{2/3})O_3$–0.4 $PbTiO_3$ Ceramics

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This article was originally published in October 2021 with several errors. They are listed as follows:

1. Figure 2a has been revised. The correct version of Fig. 2 is given bellow.

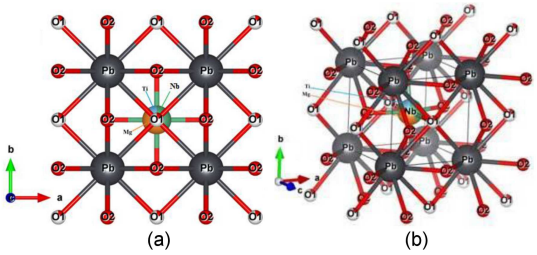

Fig. 2. (a, b) Structure scheme of 0.6PMN–0.4PT on different axis using VESTA crystallography software.

2. There was a typo in the penultimate sentence in Sect. 3.1 — it should be Nb^{5+} instead of Nd^{5+}. The entire text of this section is given below.

   The X-ray diffraction (XRD) profile of 0.6PMN–0.4PT is taken after Rietveld refinement (see Fig. 1). Coexistence of both C as well as T phases with space groups of $Pm\text{-}3m$ and $P4mm$, respectively, are observed. The fitting is judged on the basis of peak-to-peak matching of the observed and fitted data. However, the R-factors, i.e., R_{wp} (weighted profile), R_{exp} (statistically expected) and $\chi^2 = R_{wp}/R_{exp}$, are generally used to certify the quality of a fit [16]. The quality fit is found by using the C+T phase model, where the smallest $\chi^2 = 5.43$, $R_{wp} = 14.1$ and $R_{exp} = 6.04$ values are obtained. The lattice parameters and unit cell volume obtained for the C phase are found to be $a = b = c = 4.020$ Å and $V = 64.99$ Å^3, while those of the T phase — $a = b = 3.977$ Å, $c = 4.061$ Å and $V = 64.22$ Å^3. Further, it is observed that the percentage of the tetragonal phase in 0.6PMN–0.4PT is 88.35%, while that of the cubic phase is 11.65%.

   The schematic model (represented in Fig. 2a and b) is drawn using the VESTA software by compiling the CIF file of the refined data. It is observed that Pb^{3+} occupies the corner, while Mg^{2+}, Nb^{5+} and Ti^{4+} occupy the body centre position of the unit cell. The obtained structure clearly matches the previously reported results [3, 17, 18].

3. There were errors in the first column in Table I. The correct version of Table I is given below.

TABLE I

Parameters obtained from the fitting of the Jonscher's power law (shown in Fig. 4.)

	σ_{ac} [Ω^{-1} m^{-1}]	A	n	χ^2
425°C	9.69×10^{-5}	4.38×10^{-6}	0.99066	0.99986
450°C	2.18×10^{-4}	3.81×10^{-6}	0.99072	0.99989
475°C	4.7×10^{-4}	3.38×10^{-6}	0.99772	0.99978
500°C	4.35×10^{-4}	2.55×10^{-6}	0.99787	0.99977

The authors apologize for these errors.