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Original Articles

Soft mode dispersion and 'waterfall' phenomenon in relaxors revisited

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Notes

Notes

1. In the present work, the c^* axis is defined by the direction of the Q vectors expressed in reciprocal space, i.e. $c^* = 2\pi/c$, where $c = 4.04$ Å, and $c^* = 1.58$ nm⁻¹.
2. For the sake of simplicity, we will use the term "ferroelectric" in this article.
3. Apart from the c^* axis, the a and b axes are also defined by the trigonometric function $\sin(\theta)$ and $\cos(\theta)$, respectively, where θ is the angle between the c^* axis and the a or b axis.
4. This work was supported by the European Union Horizon 2020 research and innovation programme under the Marie Skłodé Curie grant agreement No. 101019718. This article is part of the special issue "Neutron Scattering in the GHz range".



5. We have combined the data from the (200) and (300) BZs as D_q should be independent of the BZ choice.
6. In principle, PMN is known to grow also, for example in pyrochlore structure, but in this case both the lattice parameters and the TO mode frequency are completely different.
7. It was argued in [9](#) that the TO mode cannot couple noticeably to the TA branch because the independent mode intensities do not change with temperature. However, this not a valid argument since the measurements shown in figure of Ref. [9](#) were done in (20q) zone, where both TA and TO modes have similar structure factors so that eventual eigenvector change has no chance to produce such drastic intensity changes as those observed in the quoted [9](#) case of SrTiO_3 .

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Infrared and Raman spectroscopy of $[\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3]_{0.92}-[\text{PbTiO}_3]_{0.08}$ and $[\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3]_{0.71}-[\text{PbTiO}_3]_{0.29}$ single crystals

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Hyper-Raman-active soft mode in $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})_{0.73}\text{Ti}_{0.27}\text{O}_3$

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Lattice Dynamics of Disordered Perovskite $\text{Pb}(\text{Zn}_{1/3}\text{Nb}_{2/3})\text{O}_3$

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Phonons in $\text{PbMg}_{1/3}\text{Nb}_{2/3}\text{O}_3$ Measured by Inelastic Neutron Scattering

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