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Soft mode dispersion and 'waterfall' phenomenon in relaxors revisited

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Abstract

Results ... ferroelectrics by Gvas... dens. Matter 19, 0162... omaly–an apparen... ved earlier in low-er... sent article, we revie... r with the outc... set-up as Gvasaliy... tal artefact. We also ... a et al., by explorin... rse optic branch f... closely.

Keywords: ... on scattering

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Notes

Notes

1. In the rest of this article, we use reduced (dimensionless) phonon wave vectors expresse , c = 4.04 Å, i.e. c* =

2. First

3. Apar gnometric funct

4. This in the GHz region, c is article.

5. We h be indepen

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 $SrTiO_3$.
