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Soft mode dispersion and 'waterfall' phenomenon in relaxors revisited

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Abstra

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

Keywords: relaxor ferroelectrics | waterfall phenomenon | phonon dispersions | inelastic neutron scattering

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Notes

Notes

1. In th vectors expresse , c = 4.04 Å, i.e. c* =

2. Firs

3. Ap gnometric function

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 $SrTiO_3$.
