Local Symmetry in PbZr_xTi_{1-x}O₃-Ceramics

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The symmetry of $PbZr_xTi_{1-x}O_3$ in the region of the morphotropic phase boundary is still under debate. Noheda *et al.* [1] claimed the existence of a monoclinic phase. In contrast to this Jin *et al.* [2] showed for relaxor ceramics that, if the width of tetragonal microdomains is smaller than the diffraction coherence length, the measured crystal lattice constants are of monoclinic symmetry.

With convergent-beam electron diffraction (CBED) very small volumes can be examined. So crystal symmetry can be investigated on single domains. To distinguish the most probable phases with space group symmetry P4mm, R3m and Cm, just one zone-axis is needed. At most two projected CBED-patterns of neighbouring domains are necessary. The method will be explained by the use of simulated and experimental CBED-patterns.

[1] Noheda B., Gonzalo J.A., Cross L.E., Guo R., Park S.E., Cox D.E., Shirane G., *Phys. Rev. B*, 2000, **61** 8687. [2] Jin Y.M., Wang Y.U., Khachaturyan A.G., Li J.F., Viehland D., *Phys. Rev. Lett.*, 2003, **91**, 197601.

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