

Abstract Submitted
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Contribution of polar nanoregions to the giant flexoelectricity of relaxor ferroelectrics GUSTAU CATALAN, ICREA and ICN2, Barcelona, JACKELINE NARVAEZ, ICN2, Barcelona, OXIDE NANOELECTRONICS GROUP TEAM — We have studied the bending-induced polarization of single crystal relaxor ferroelectrics close to a morphotropic phase boundary. Anomalous large flexoelectric and flexocoupling coefficients were registered, with values well in excess (up to 10 times bigger) than theoretical expectations based on Kogan's theory [1] below critical temperature. The temperature dependence of the effective flexoelectric coefficients shows that this anomalous enhancement persists in the temperatures up to $T^* \sim 250^\circ\text{C}$, above which the values fall back in line with theoretical expectation for pure flexoelectricity. Cross-correlation between flexoelectric and elastic measurements indicates that the anomalous enhancement of bending-induced polarization is caused by the flexoelectric reorientation of non-percolating polar nanotwins that exist in the temperature range between T_c and T^* .

[1] S. M. Kogan, Soviet Physics Solid State, 5, (1964) 2069.

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