

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Anomalous Skin Effect in the Lead-Free Relaxor NBT PETER GEHRING, National Institute of Standards and Technology, WENWEI GE, Virginia Polytechnic and State University, DANIEL PHELAN, University of Minnesota, QINHUI ZHANG, Shanghai Institute of Ceramics, Chinese Academy of Sciences, JIE FANG LI, DWIGHT VIEHLAND, Virginia Polytechnic and State University, HASUO LUO, Shanghai Institute of Ceramics, Chinese Academy of Sciences, LYNN BOATNER, Oak Ridge National Laboratory — Several x-ray and neutron powder diffraction studies have shown that the room-temperature space group of the lead-free relaxor NBT is monoclinic Cc and not rhombohedral R3c, as was previously believed. Motivated by these findings, we performed room-temperature neutron scattering measurements on a large (3.5 gram) single crystal of the lead-free relaxor NBT. Our data confirm the R3c symmetry for bulk NBT and place a strict bound on the strength of the 1/2(111) superlattice reflection associated with the Cc space group based on the published atomic coordinates. We show that a skin effect, analogous to that reported in the relaxors PZN and PMN-10%PT, can reconcile our single-crystal data with these other studied. We believe this represents the first evidence of the relaxor skin effect in a lead-free relaxor.

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Date submitted: 15 Nov 2013

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