Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Quantitative Huang-scattering analysis of local structure in the relaxor-based piezoelectric PZN-4.5%PT[1] BRANTON J. CAMPBELL, VAYEE VUE, DANIEL ROBERTSON, Brigham Young University, Dept. of Physics & Astronomy, STEPHAN ROSENKRANZ, Argonne Nat. Lab., Mat. Sci. Div., PETER LEE, Argonne Nat. Lab., Advanced Photon Source, STINE N. ANACONA, RAY OSBORN, Argonne Nat. Lab., Mat. Sci. Div. — Polar nano-regions (PNR) in ferroelectric relaxor materials like $Pb(Zn_{1/3}Nb_{2/3})O_3$ and $Pb(Mg_{1/3}Nb_{2/3})O_3$ are of pressing applied interest due to their influence on the remarkable piezoelectric properties of their solid solutions with $PbTiO_3$. In the recent literature, x-ray and neutron single-crystal diffuse scattering techniques have been shown to provide qualitative insight into the local structure of these materials. Here, we present a quantitative three-dimensional Huang-scattering analysis of 80 keV x-ray single-crystal diffuse scattering data from PZN-4.5%PT.

[1]This research was supported by an award from Research Corporation and from the U.S. Dept. of Energy Office of Science under contract No. W-31-109-ENG-36.

Branton J. Campbell
Brigham Young University, Dept. of Physics & Astronomy

Date submitted: 03 Dec 2006 Electronic form version 1.4