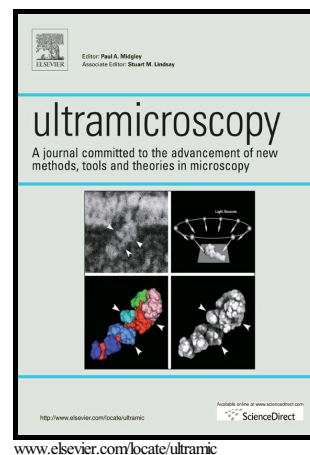


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# Mapping 180° Polar Domains Using Electron Backscatter Diffraction and Dynamical Scattering Simulations

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## Abstract

A novel technique, which directly and nondestructively maps polar domains using electron backscatter diffraction (EBSD) is described and demonstrated. Through dynamical diffraction simulations and quantitative comparison to experimental EBSD patterns, the absolute orientation of a non-centrosymmetric crystal can be determined. With this information, the polar domains of a material can be mapped. The technique is demonstrated by mapping the non-ferroelastic, or 180°, ferroelectric domains in periodically poled LiNbO<sub>3</sub> single crystals. Further, the authors demonstrate the possibility of mapping polarity using this technique in other polar materials system.

## Introduction

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