

## **X-Ray Topography**

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### **ABSTRACT**

X-ray topography is a nondestructive technique to characterize strain and visualize inhomogeneities, imperfections, and distortions in crystals. This article presents X-ray topography fundamentals, basic technique, and simulation. In principle, the topographic information produced by diffracted X-ray beam when the Bragg condition is satisfied. Among the basic extended beam methods are integrated wave and plane wave topography. The integrated wave method includes white beam X-ray topography which is the Laue technique with low divergent, powerful, and broad incident beam. The advent of synchrotron radiation topography permits a fast and detailed study of defects in crystalline materials.

### **KEYWORDS**

Borrmann effect; Bragg diffraction; Dislocation; Dynamical theory; Lattice distortion; Laue technique; Plane wave topography; Synchrotron radiation (SR) X-ray topography; White-beam X-ray topography

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