Book

Physics of ferroelectrics : a modern perspective

RABE, Karin M., AHN, Charles, TRISCONE, Jean-Marc

Abstract

During the past two decades, revolutionary breakthroughs have occurred in the understanding of ferroelectric materials, both from the perspective of theory and experiment. First principles approaches, including the Berry phase formulation of ferroelectricity, now allow accurate, quantitative predictions of material properties, and single crystalline thin films are now available for fundamental studies of these materials. In addition, the need for high dielectric constant insulators and nonvolatile memories in semiconductor applications has motivated a renaissance in the investigation of these materials. This book addresses the paradigmatic shifts in understanding brought about by these breakthroughs, including the consideration of novel fabrication methods of single crystalline ferroelectric thin films and nanoscale applications of these materials, and new theoretical methods such as the effective Hamiltonian approach and density functional theory. A book for practicing scientists as well as graduate students.

Reference

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