

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Strains and rotations in cubic-tetragonal ferroelastics ALLAN JACOBS, Physics, University of Toronto — Many ferroelastic materials are also ferroelectric or ferromagnetic; a classic example is barium titanate which transforms from cubic to tetragonal with decreasing temperature. The various low-temperature variants in ferroelastics are described by different values of the order-parameter (deviatoric) strain(s). In order to maintain a coherent interface free of disclinations, dislocations and other defects, the variants are rotated as well as separated by domain walls; the rotation might be observable by birefringence imaging. Non-order-parameter strains (dilatational and shear) are generally present in walls but are usually small there. In regions where walls collide however, the rotations are confused, generating dilatational and shear strains of order of the deviatoric strains. This talk describes various kinds of collision regions observed in simulations of cubic-tetragonal systems.

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Date submitted: 30 Nov 2004

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