

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Relationship between grain boundary structure and faceting: a combined multi-dimensional and coarse grained approach DENIS BOYER, DAVID ROMEU, National University of Mexico — We jointly apply a higher dimensional crystallography theory and symmetry principles of nonlinear dynamics to study the structure of grain boundaries in solids. These two complementary methods efficiently capture general effects of competition for space in crystals, and can easily deal with long, non-singular boundaries. Faceting can be interpreted by the fact that interfaces tend to be aligned either along the Bollmann O-lattice or a new related lattice. Good agreement is found between our predictions and numbers of microscopy experiments on tilt boundaries, both in metals and ceramics.

Marcelo del Castillo-Mussot
National University of Mexico

Date submitted: 02 Dec 2004

Electronic form version 1.4