ATOMISTIC MECHANISMS OF TWIN BOUNDARIES MIGRATION IN MAGNESIUM

A. Ostapovets

[1]*CEITEC-IPM, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Žižkova 22, 61662 Brno, Czech Republic*
e-mail: ostapov@ipm.cz

Deformation twinning is important mode of plastic deformation in the materials with hexagonal close packed (hcp) structures, such as magnesium, titanium or zinc. The twins are regions, which undergo shear deformation. They often have lamellar shape with twin boundaries along planes invariant to twinning shear. However, the twin boundaries sometimes do not obey the invariant plane law. For instance, faceting of twin boundaries is widely discussed for $\{10\bar{1}1\}$ and $\{10\bar{1}2\}$ twins in magnesium and cobalt [1-5]. The most common are basal-prismatic facets, which were found in $\{10\bar{1}2\}$ twin boundaries. Existence of such facets were proven experimentally and theoretically.

Faceting of twin boundaries can be understood by consideration of twin boundaries migration mechanisms. The aim of present paper is to discuss mechanisms of twin boundary faceting in magnesium on the basis of atomistic simulations. The comparison of theoretical results with experimental observations will be also provided.

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