

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Investigation of Grain Boundary Grooving Using Phase Field Crystal Model SHANG-CHUN LIN, KUO-AN WU, Physics Department, National Tsing Hua University — Dynamics of Grain Boundary (GB) grooving plays an important role in microstructure evolution. Classical theory on GB grooving assumes the solid-solid interface as a homogeneous boundary where details of GB structures are ignored. This assumption clearly requires certain modifications for cases such as low angle GB. The advantage of phase field crystal (PFC) method is its capability to describe materials with atomic resolutions. We investigate how dislocations influence dihedral angle in low angle GB. Furthermore, we find interesting phenomena occur during GB grooving, such as grain rotation and dislocation translation, which provide an alternative way to control grain growth at the nanoscale.

Kuo-An Wu
Physics Department, National Tsing Hua University

Date submitted: 04 Nov 2013

Electronic form version 1.4