



Showcasing research from the Mechanics of Materials department, Sandia National Laboratories, USA

An interplay between a hydrogen atmosphere and dislocation characteristics in BCC Fe from time-averaged molecular dynamics

This work explores the effect of hydrogen on dislocation stability for character angles ranging from 0° (screw) to 90° (edge). A dislocation's strain field concentrates hydrogen concentrates around it leading to stabilization of all dislocations tested with edge-like dislocations being stabilized the most. This deepens our understanding of Hydrogen embrittlement in ferritic steels.

As featured in:



See C. Nowak and X. W. Zhou,
Phys. Chem. Chem. Phys.,
2023, **25**, 8369.