

# Atomistic Aspects of the Plasticity in Complex Intermetallics

Julien Guénoilé

*LEM3 – Université de Lorraine – CNRS – Arts et Métiers ParisTech, Metz, France*

Intermetallic materials can exhibit complex crystalline and chemical configurations that make the understanding of their deformation processes a long-lasting challenge. To date, most of the atomistic mechanisms responsible for the plasticity in such materials remain unclear. Here, we propose to explore some of the unexpected features of the plastic defects observed in such materials, with a particular focus on the lightweight Ti- and Mg-base lightweight intermetallic alloys. Molecular static and dynamic simulations using classical interatomic potentials are employed to enlighten experimental results regarding the propagation of shear in the (Mg,Al)Ca Laves phase, including at interfaces, and the characterization of plastic defects in the  $\text{Ti}_3\text{AlC}_2$  MAX phase.