

N. Admal: A Decomposition of the Atomistic Stress Tensor into an Elastic and a Plastic Component

In this talk, we propose an additive decomposition of the atomistic stress tensor into an elastic and a plastic part. Interestingly, the elastic part is independent of the choice of the potential energy representation. The continuum theory of elastoplasticity also provides an additive decomposition of the stress tensor into an elastic and a plastic part, which is based on the multiplicative decomposition of the deformation gradient. Through various numerical experiments we compare and highlight many similarities between the two decompositions.