

FFT-Based Proximal Methods for the Computational Homogenization of Inelastic Materials

Matti Schneider¹ Daniel Wicht² Thomas Böhlke³

In the context of computational homogenization on volumetric image data FFT-based methods have demonstrated their superiority in recent years. From a mathematical perspective, their core is constituted by preconditioning via solving a homogeneous reference problem, and a matrix-free formulation. In this talk we show how (fast) gradient and proximal splitting schemes can be used to solve large scale inelastic homogenization problems for realistic microstructure geometries.

¹Karlsruhe Institute of Technology (KIT), Institute for Engineering Mechanics
`matti.schneider@kit.edu`

²Karlsruhe Institute of Technology (KIT), Institute for Engineering Mechanics
`daniel.wicht@kit.edu`

³Karlsruhe Institute of Technology (KIT), Institute for Engineering Mechanics
`thomas.boehlke@kit.edu`