

An Effective Damage and Fracture Model Based on Micro-Structure

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Abstract

Macroscopic damage and failure phenomena of solids typically are the result of the accumulation of small cracks or defects on a microscopic scale. In engineering literature, various multi-scale or homogenized models are proposed in order to describe time-dependent damage phenomena originating from fine structure on the micro-scale. In this lecture, we discuss these approaches in the framework of homogenization and evolutionary Γ -convergence. The lecture relies on joint work with Hauke Hanke (formerly WIAS Berlin).