Technische Universität Braunschweig

MUSEN

Multi-scale and Multi-physics Problems in Porous Media: Homogenization and Numerical Model Reduction

Lecture of

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Webex Meeting:

http://bit.ly/musen-kolloquium-jaenicke
Meeting number: 121 298 2492
Passwort: 3Ph22HwPsBp

Material properties and damage evolution in engineering structures are controlled by coupled “multi-physics” processes on various length and time scales that might ultimately result in the collapse of the entire structure. Often, such deterioration processes are driven by transport of a liquid phase or further mobile species (e.g. Chloride ions in concrete) through pore networks or along highly conductive fractures embedded in a solid phase.

In this presentation, I will present computational and experimental approaches to visualize and to model damage processes associated with transport in porous media across the scales. In particular, I will address Computational Homogenization with Numerical Model Reduction that allows for a significant reduction of computation time. Finally, I will give an outlook on ongoing and future activities including experimental approaches and in-situ 3D imaging.