

G-CSC Kolloquium

On multiscale flow and material simulations

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Abstract

The talk will present an overview on certain multiscale flow and material simulations. Some recent developments of numerical upscaling approaches for flow problems, such as multiscale finite volume and variational multiscale methods, will be shortly discussed. The latter will be also discussed as part of general framework for numerically upscaling multiscale problems, or for developing upscaling-based preconditioners for problems with highly oscillating coefficients. Challenging industrial multiscale problems, arising in filtration, Li-ion batteries, composite materials, etc., will be introduced, and the current state of their solution will be presented.