An algebraic multiscale method [1]

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Abstract

We present an algebraic multiscale method. The idea is motivated from the algebraic multigrid method (AMG) which is an iterative scheme to accurately approximate a linear system. Our approach differs in investigating in how to obtain a rough approximation to the original algbraic system arising from modeling heterogeneous materials. We discuss in detail how macroscopic basis functions can be formulated and result in a reduced macroscopic linear system based on the knowledge of microscopic linear system, with significant redution of dimension.

[1] This presentation is based on joint works with Kanghun Cho (SNU), Roktaek Lim (Hong Kong Baptist Univ.).