Numerical zoom for localized multi-scale problems

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Abstract:

We investigate the Schwarz' domain decomposition algorithm for numerical zooms. Error estimates are given for non-matching meshes for elliptic and parabolic partial differential equations. The method is applied to the security assessment of the burial of nuclear waste which is a typical multiscale problem for porous media flow.

Extension to Navier-Stokes equations will be discussed.

This is joint work with Alexei Lozinski and it is related to the work of R. Glowinski, Jiwen He and Jacques Rappaz.

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