

NEW HOMOGENIZATION METHOD FOR DIFFUSION PROBLEMS WITH HIGH CONTRAST INCLUSIONS: NUMERICAL RESULTS

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In this presentation, we consider a new approach to the numerical solution of the diffusion equations in media with high contrast inclusions. The idea of the approach is to replace the original classical variational finite element problem with large values of the diffusion coefficients by an equivalent variational saddle point problem with small values of the coefficients. Then we apply the classical expansion technique and derive the convergence estimate.

The main target of the current research is confirmed numerically the earlier theoretical results on a number of large scale finite element diffusion problems with large number of high contrast inclusions.