

The Finite Element Heterogeneous Multiscale Method based on Nonconforming Spaces

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In this talk, we propose a Finite Element Heterogeneous Multiscale Method (FEHMM) scheme for multiscale elliptic problems based on nonconforming spaces, mainly the P1 quadrilateral nonconforming element. A priori error estimate for the homogenized solution is derived by general properties of the FEHMM framework and that of nonconforming finite elements. We provide several numerical results which confirm our analysis. Some technical issues about implementations are also mentioned.