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Eric T. Chung, Yalchin Efendiev and **Guanglian Li*** (lotusli0707@gmail.com). *An adaptive GMsFEM for high-contrast flow problems.*

In this paper, we derive an a-posteriori error indicator for the Generalized Multiscale Finite Element Method (GMs-FEM) framework. This error indicator is further used to develop an adaptive enrichment algorithm for the linear elliptic equation with multiscale high-contrast coefficients. We consider two kinds of error indicators where one is based on the L^2 -norm of the local residual and the other is based on the weighted H^{-1} -norm of the local residual where the weight is related to the coefficient of the elliptic equation. We show that the use of weighted H^{-1} -norm residual gives a more robust error indicator which works well for cases with high contrast media. The convergence analysis of the method is given. (Received September 14, 2014)