

A Posteriori Error Estimates in Finite Element Method by Preconditioning

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We present a framework that relates preconditioning with a posteriori error estimates in finite element methods. In particular, we use standard tools in subspace correction methods to obtain reliable and efficient error estimators. As a simple example, we recover the classical residual error estimators for the second order elliptic equations as well as present some new estimators for systems of PDEs. This is a joint work with Yuwen Li (Penn State).