

Postprocessing Techniques Using a Linear Nonconforming Finite Elements

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Two different a-posteriori techniques which improve the order of convergence of finite element solutions are presented. These methods are realized by means of an integral type Crouzeix-Raviart nonconforming finite element. Superconvergence rate is established to a second order elliptic problem by introducing nonstandard interpolated elements. We also analyze a simple postprocessing method applied to second order eigenvalue problems. Both approaches are illustrated and discussed by appropriate numerical examples.