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A Unified Theory of A Posteriori Error Control for finite element methods

In this talk, we present a unified theory for a posteriori error estimate of finite element methods. This theory covers three classes of finite element methods, i.e., conforming finite element method, nonconforming finite element method, and mixed finite element method. Three kinds of problems are studied in this unified framework. They are the Poisson problem, the Stokes problem, and the linear elasticity problem. Some remarks are given for the a posteriori error estimate for nonconforming finite element methods, which are excluded by the aforementioned unified theory.