

1067-03-705

Ivo M. Babuska, Uday Banerjee and Hengguang Li* (li_h@ima.umn.edu), IMA, University of Minnesota, Minneapolis, MN 55455. *The effect of numerical integration on the finite element computation of linear functionals.*

It is well known that the discretization of a finite element method results in a linear system of equations, in which the matrix and the load vector are usually computed by numerical integration. The inexact integration may lead to a different linear system, and consequently, produce a different finite element solution. In this talk, starting with a brief discussion on the existing results regarding the impact of quadrature rules on the finite element approximation in the energy norm, we will present a sharp estimate on the convergence rate of the finite element approximation with numerical integration for linear functionals. (Received September 13, 2010)