

1014-65-1675      **Ivan I. Dyyak\*** ([ivan\\_lv@yahoo.com](mailto:ivan_lv@yahoo.com)), 1200 N. DuPont Highway, Dover, DE 19901, and **Mazen Shahin** ([mshahin@desu.edu](mailto:mshahin@desu.edu)), 1200 N. DuPont Highway, Dover, DE 19901. *A new version of implementing h-adaptivity of finite element method for elliptic problems.* Preliminary report.

In recent years, adaptive methods have gained increased importance and were analyzed for FEM and BEM. All three versions (h-, p-, and hp- adaptivity) are based on the principle that the solution should be modified in regions where the obtained approximation is unsatisfactory. We propose a new technique for a posteriori error estimation of the finite element approximation to the linear elliptic boundary value problem. The error representation formula uses the differences of stresses between Galerkin boundary element and finite element solutions of the problem. Computable error estimates suggest a straightforward strategy for the mesh adaptivity. Numerical results for plane linear elasticity problems confirm the perspectives of such estimations. (Received September 28, 2005)