Contribution ID: **17** Type: **not specified**

A new a posteriori error estimate for the BEM

Friday, February 5, 2016 10:10 AM (35 minutes)

A posteriori error estimates are tools which enable a measure of the numerical error. They are required to be equivalent to the norm of the error and to be locally computable. They are norms of values which can be computed from the numerical solution and the problem parameters. In the context of BEM, there is a loss of locality of the norms and therefore of the estimates. Standard localization techniques partially solve the issue but lead to a loss of control between the norm of the error and the estimate.

We introduce a new localization technique based on the computation of the residual (the norm of the residual is an equivalent norm of the error). By applying a well-chosen isomorphism to the residual, we can “carry” it in some functional space where the norm is local (typically L2). We rst introduce the concept for the BEM in 3D-acoustics, then we give an introduction on what this -estimation would look like for the EFIE.

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