Anisotropic Splitting of A Posteriori Errors Estimated with the Dual Weighted Residual Method

Thomas Richter[1]

We will present the extension of the Dual Weighted Residual method (DWR) for a posteriori error estimation to anisotropic finite elements.

The common approach for anisotropic adaptive mesh control combines the DWR-method for determining regions of refinement with the recovery of higher derivatives for determining the optimal refinement direction. This two-step approach however does not yield the correct balancing of primal and adjoint anisotropy information in all cases.

Our work will allow for a direct estimation of directional errors with the DWR-method leading to a unified approach for mesh refinement and identification of anisotropy.

[1]University of Heidelberg, Institute for Applied Mathematics, INF 294, 69120 Heidelberg, Germany, thomas.richter@iwr.uni-heidelberg.de