

An adaptive boundary element method for the exterior Stokes problem

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We present an adaptive refinement strategy for the h -version of the boundary element method with weakly singular operators on surfaces. The model problem deals with the exterior Stokes problem, and thus considers vector functions. Our error indicators are computed by local projections onto one-dimensional subspaces defined by mesh refinement. These indicators measure the error separately for the vector components and allow for component independent adaption. Assuming a saturation condition the indicators give rise to an efficient and reliable error estimator. The saturation assumption is justified by proving an optimal lower a priori error estimate for edge singularities on uniform and graded meshes.

The theoretical results are underlined by numerical experiments.

This is a joint work with Vincent J. Ervin, Clemson University, S.C., USA.