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## An a posteriori error estimator for a unsteady advection-diffusion equation\*

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### Abstract

In this work we introduce an a posteriori error estimates for the unsteady advection-diffusion-reaction equation in two space dimensions. For the discretization we use backward Euler in time, and continuous, piecewise linear triangular finite elements in space together with a stabilized scheme. The error is bounded above and below by an explicit error estimator based on the residual. Numerical results are presented for uniform triangulations and constant time steps. The quality of our error estimator is discussed. An adaptive algorithm is then proposed and numerical results demonstrate the efficiency of our approach.

### References

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