Fully Discrete A Posteriori Estimates for the Two-step Backward Differentiation Formula (BDF2) for the Time Dependent Stokes Equations

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We present optimal order residual-based a posteriori error estimates for the fully discrete instationary Stokes equations. The time discretization uses the two-step backward differential formula method (BDF2) and the space discretization is based on inf-sup stable pairs of finite elements, where we allow arbitrary mesh changes and variable time steps.

An algorithm for variable time steps is presented and computational examples are given to confirm the theoretical findings.

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