

Maximum-norm a posteriori error estimators for parabolic problems

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For classical and singularly perturbed semilinear parabolic equations, we present maximum norm a posteriori error estimates that, in the singularly perturbed regime, hold uniformly in the small perturbation parameter. The parabolic equations are discretised in time using the backward Euler method, the Crank-Nicolson method and the discontinuous Galerkin dG(1) method. Both semidiscrete (no spatial discretisation) and fully discrete cases will be considered. The analysis invokes elliptic reconstructions and elliptic a posteriori error estimates.

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References:

- [1] N. Kopteva and T. Linß, *A posteriori error estimation for parabolic problems using elliptic reconstructions. I: Backward-Euler and Crank-Nicolson methods* (submitted for publication) http://www.staff.ul.ie/natalia/pdf/Kopt_Linss2011_1.pdf
- [2] N. Kopteva and T. Linß, *A posteriori error estimation for parabolic problems using elliptic reconstructions. II: The discontinuous Galerkin method* (in preparation)

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