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Non-smooth data error estimates for linearly implicit Runge-Kutta methods and applications

We consider linearly implicit one-step methods for time discretization of semilinear parabolic equations with nonsmooth initial data and derive finite-time error bounds. The analysis is based on the framework of analytic semigroups which includes reaction-diffusion equations and incompressible Navier-Stokes equations. Such error bounds are used in the study of the long-time behaviour of numerical discretizations applied to parabolic problems. Reference: A. Ostermann and M. Thalhammer: Non-smooth data error estimates for linearly implicit Runge-Kutta methods and applications, in preparation.