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”Complete and energy blow-up in superlinear parabolic problems”

ABSTRACT:

We consider a class of parabolic equations with power nonlinearities. It is known that some solutions of these equations blow up in finite time. We are mainly interested in the question whether or not such solutions can be continued beyond the blow-up time in a weak sense. In particular, we study the influence of nonhomogeneous coefficients on this phenomenon. Our results are based on suitable a priori bounds which are of independent interest (due to their applications in the control theory and dynamical systems, for example).