

Blow-up behaviour for some nonlinear parabolic problems

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Abstract

One of remarkable properties of nonlinear evolution problems is the possibility of eventual occurrence of singularities starting from perfectly smooth initial data. The simplest form of spontaneous singularities, a blow-up phenomenon, appears when solutions cease to exist globally in time because of infinite growth of one of the variables describing the evolution process. The talk will discuss main questions raised in the study of blow-up for several parabolic problems. For example, what is the rate of blowup, and how to describe possible space-time profiles of blowing up solutions.