Dynamics of global solutions of a semilinear parabolic equation

Eiji Yanagida
Ordway visitor/Tohoku University

Abstract: The purpose of this talk is to review recent progress on the dynamics of global solutions of the Cauchy problem for a parabolic equation with power nonlinearity. It is shown that in some parameter range, the large-time behavior of solutions is determined by the spatial decay rate of initial data. It is shown that depending on initial data, the solution exhibits grow-up, convergence to steady states and self-similar solutions, non-convergence and quiasi-convergence. Moreover, given a specific decay rate of initial data, we can determine the rate of grow-up and convergence in an explicit way.