

Existence and Nonexistence of the Global Solutions for a Reaction-Diffusion System

Yusuke Yamauchi

Division of Mathematics, Hokkaido University, Japan.

yamauchi@math.sci.hokudai.ac.jp

We consider the Cauchy problem for the reaction-diffusion system with the strongly coupled power type nonlinearities with the variable coefficients. Our aim is to show the conditions for the existence and nonexistence of global solutions of the system. The conditions are about the relation between the exponents of nonlinear terms. The proof of the existence is mainly based on finding supersolutions and the comparison principle. On the other hand, the proof of the nonexistence is based on Kaplan's method.