

**Meeting:** 1003, Atlanta, Georgia, SS 28A, AMS-SIAM Special Session on Reaction Diffusion Equations and Applications, I

1003-35-1637      **Xu-Yan Chen\*** (xchen@math.gatech.edu), School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332-0160. *A Uniqueness Theorem for Nonlinear Reaction Diffusion Equations.*

It is well known that the Cauchy problem of the heat equation  $u_t = \Delta u$  has nontrivial classical solutions with zero initial data. The uniqueness for the heat equation only holds under some growth conditions on the solutions at space infinity. On the contrary, we will show that for a class of nonlinear reaction diffusion equations, the uniqueness of solutions to the Cauchy problem holds without any growth conditions. Our examples include  $u_t = \Delta u + u - u^3$ . The existence of solutions with singular initial data will also be discussed. (Received October 05, 2004)