

Dynamics of one-dimensional reaction-diffusion equations and the extended omega limit set

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In this talk I will discuss the long-time behavior of solutions of one-dimensional reaction-diffusion equation on the entire line \mathbb{R} . The talk is mostly based on my recent joint work with Peter Polacik. Among other things I will discuss the long-time behavior of non-negative solutions whose initial data decay at infinity and establish a convergence theorem that generalizes my earlier work with Yihong Du on solutions with compactly supported initial data. The main tools of our analysis are a new type of intersection-number argument and a notion of extended omega-limit set. As an application of our general result, I will show the existence of an entire solution that consists of two pulses that travel from space infinity and eventually collide with each other..