

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**Numerical Study on Asymptotic
Stability of Travelling Wave for
Nicholson's Blowflies Equation**

邀请人: 石钟慈 院士

报告时间: 2013年8月10日(周六)

上午 10:00-11:00

报告地点: 科技综合楼三层 311

计算数学所报告厅

Abstract:

In this talk, we numerically study the asymptotic stability of travelling wave solutions for Nicholson's Blowflies equation, a time-delayed reaction-diffusion equation, with local or nonlocal nonlinearity.

It is known that, when the ratio of birth rate coefficient (p) and death rate (d) p/d lies between 1 and e , the equation is monotone, and possesses monotone traveling wavefronts. However, when the rate is larger than e , the equation loses its monotonicity, and its traveling waves may be oscillatory when the time-delay r is large, which causes the study of stability of these non-monotone traveling waves to be challenging. In this talk, for the case p/d lies between e and e^2 , we numerically demonstrate that monotone or non-monotone travelling waves are exponentially stable when delay time is small and large respectively. For the case that p/d is larger than e^2 , monotone or non-monotone travelling waves are exponentially stable for some small delay time, and are unstable for large delay time. Several interesting numerical results shall be demonstrated too.

Part of the talk is a joint work with Ming Mei, Chi-Kun Lin and Yanping Lin.

欢迎大家参加!