

系列讲座“行波解的谱稳定性理论及应用”

报告人：吴雅萍 教授 首都师范大学

报告时间、地点：2023年11月13日（一） 14:30 A楼109

2023年11月14日（二） 9:30 A楼113

2023年11月16日（四） 9:30 A楼113

2023年11月16日（四） 14:30 A楼113

2023年11月17日（五） 9:30 行政辅楼311

报告人介绍：吴雅萍，首都师范大学数学科学学院教授、博士生导师，享受政府特殊津贴。多年来主要从事非线性偏微分方程的理论研究工作，在对多种类型的反应扩散方程组解的定性研究，哈密顿系统的孤立波及抛物双曲耦合方程的行波解的稳定性研究方面取得一系列创新性的研究成果，作为第一负责人先后主持了多项国家及省部级科研项目。曾获“邓稼先青年科技理论奖”、“北京市科技进步二等奖”（排名1）。先后多次应邀访问美国Iowa州立大学、香港中文大学数学研究所等大学。

报告摘要： In this short course I shall first introduce some known results (without proof) on the existence and spatial decay of the planar traveling waves for several types of reaction diffusion equations and system. Based on the known results on spatial decay of waves and the types of the models, this course will also give a brief introduction on the concepts of stability of waves and the classical linear and nonlinear stability theories based on semigroup theories. Further I shall focus on the introduction of classical spectral theories and application of spectral analysis and Evans function method to several types of reaction diffusion models.

Main topics in the short course:

1. Brief review on the existence and spatial decay of planar traveling waves of Fisher-KPP equation and degenerate Fisher type equation and some R-D systems.
2. Introduction on the linear and nonlinear stability theories of traveling waves (related with semigroup stability theories)
3. Introduction on the classical spectral theories and spectral analysis of waves for some R-D models
4. Application of spectral analysis, Evans function method and sub-supper solution method to degenerate Fisher type equation
5. Application of spectral analysis and Evans method to some R-D systems