

Existence of Traveling Wave Solutions for Diffusive Predator-Prey Type Systems

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Abstract

In this work we investigate the existence of traveling wave solutions for a class of diffusive predator-prey type system whose each nonlinear terms can be separable as a product of suitable smooth functions satisfying some monotonic conditions. The profile equations for the above system can be reduced as a four-dimensional ODE system, and the traveling wave solutions which connect two different equilibria are equivalent to the heteroclinic orbits of the reduced system. Applying the methods of Wazewski Theorem, LaSalle's Invariance Principle, we obtain the existence results. Our results can apply to various kinds of ecological models.

This talk is based on several joint works with Professors Cheng-Hsiung Hsu, Tzi-Sheng Yang and Ting-Hui Yang.

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