

# Convergence in Almost Periodic Competition Diffusion Systems

Georg Hetzer

and

Wenxian Shen \*

Department of Mathematics

Auburn University

Auburn University, AL 36849

## Abstract

The paper deals with the convergence of positive solutions for almost periodic competition diffusion systems. The asymptotic almost periodicity of a positive solution for such a system is described by the almost periodicity of the  $\omega$ -limit set of the corresponding positive motion in the associated skew-product flow. In the framework of the skew-product flow, it will be proved that the  $\omega$ -limit set of any spatially homogeneous positive motion contains at most two minimal sets which are both almost automorphic. It will also be proved that if each spatially homogeneous positive solution is asymptotically almost periodic and each spatially homogeneous positive almost periodic solution is lower (upper) asymptotically Lyapunov stable, then every positive solution converges to a spatially homogeneous almost periodic solution. Several important special cases are described where every positive solution converges to a spatially homogeneous almost periodic solution.

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\*Partially supported by NSF grant DMS-9704245