



Minisymposium 9 - Nichtlineare Evolutionsgleichungen und Probleme mit freiem Rand

Analysis of some Lotka-Volterra competition model in the presence of cross-diffusion

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In this talk we analyze the effect of cross-diffusion terms on some Lotka-Volterra models. Some aspects that will be discussed is the existence and the nonexistence of nontrivial steady state solution. Furthermore, we will look for traveling wave solutions for some explicit systems. In particular, we will analyze the following cross-diffusion system:

$$(1) \quad \left. \begin{aligned} u_t &= \Delta u + e\Delta v + u^p(1 - u - cv) \\ v_t &= d\Delta v + f\Delta u + v^q(a - bu - v) \end{aligned} \right\}.$$

We will establish some existence results for traveling wave solutions of this system and we will analyze their stability properties.