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78539. *Degenerate Reaction-Diffusion Systems.*

In this talk, we study the case that some species migrate from densely populated areas into sparsely populated areas to avoid crowding, and investigate a more general reaction-diffusion system by considering density-dependent dispersion as a regulatory mechanism of the cyclic changes. Here the probability that an animal moves from the point x_1 to x_2 depends on the density at x_1 . Under certain conditions, we apply the higher terms in the Taylor series and the center manifold method to obtain the local behavior around a non-hyperbolic point of codimension one in the phase plane, and use the Lie symmetry reduction method to explore bounded traveling wave solutions. Numerical simulation and biological explanation are presented. (Received February 08, 2018)