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Nonlocal coefficient diffusion in Lotka-Volterra models

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In this talk we present theoretical results of the Lotka-Volterra models with non-local diffusion, specifically, the diffusion coefficients depend on the total population in a nonlinear way. This kind of diffusion models that the species tends to leave crowded areas or is attracted to regions with higher population density, depending on whether the nonlinear function increases or decreases, respectively. The inclusion of these non-local terms in the diffusion coefficients entails significant technical difficulties. We show results of the existence and non-existence of coexistence states of the models depending on the coefficients of the model.