Bifurcation and global dynamics of three dimensional LotkaVolterra systems

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In this talk, we will introduce bifurcation of non-isolated zero-Hopf equilibrium and discuss global dynamics for a class of three dimensional LotkaVolterra systems, which describes two predators competing for the same food. By theoretical analysis on this system, we obtain sufficient and necessary conditions for the principle of competitive exclusion to hold, and give the global dynamical behavior of the three species in the first octant. It is shown that there are two coexistence states for the three species: periodic oscillations or steady states, which depend on the resource for the prey.

This talk is based on the joint works with J. Llibre.