Title:

Zero-Hopf equilibria in Hamiltonian systems

Abstract:

While the classical Hopf bifurcation has been very well studied in the differential systems and also in the Hamiltonian systems, this is not the case for the zero-Hopf bifurcation in the Hamiltonian systems. We study the zero-Hopf bifurcation in the Hamiltonian systems of two degrees of freedom, and we provide sufficient conditions in order that four families of periodic orbits emerge in a such zero-Hopf bifurcation. We also show that the Weinstein and Moser theorem only can provide at most two families of such periodic orbits.