Abstract

Existence of periodic solutions in some population dynamics models

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This lecture is concerned with the existence of periodic solutions for diverse models of population dynamics. Using topological degree methods, we shall present some abstract theorems that can be applied to different equations, thus unifying the analysis of a broad class of scalar models in a single setting. Existence conditions for nonlinear, non-autonomous models and models with state-dependent delays shall be presented. The technique fulfills multiple roles: it can be used to expand on well-known results as well as to shorten existing proofs. We shall provide some examples to illustrate the applicability of our results.