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Title of Talk: Extinction Dynamics Due to an Invading Predator

Abstract:

In many ecosystems, invasion of a new predator has led to the extirpation or local extinction of native species. The Rosenzweig-MacArthur predator-prey model with Holling Type II predation on multiple prey species is used in this study to classify such extinction mechanisms by an invading predator. Prey species are assumed to have widely varied timescales in reproduction, which makes the classification possible in terms of singular orbits. Detailed analyses on singular orbits are carried out for models of one, two, and three prey species and the results are then generalized to n prey species. The results can be used to predict which prey species will be driven to extinction and in what order these extinctions will occur.