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Chris Cosner* (gcc@math.miami.edu). *Movement models with switching.*

In classical models for the dispersal of animals in continuous time and space a single advection-diffusion operator or nonlocal integral operator is typically used to model dispersal. Actual animals are often observed to switch between two or more different movement modes for large scale search to locate resources and for small scale search and exploitation once they are located. This talk will give an overview of several papers on models for populations with two or more movement modes. A novel feature of these models is that when combined with population dynamics they can lead to reaction-diffusion systems which are cooperative at low densities but competitive at higher densities, which creates some mathematical challenges in using monotone dynamical systems theory to study them. (Received September 12, 2020)