



MMI

Maud Menten Institute
Mathematics for the Life Sciences



**University
of Victoria**



***Maud Menten Institute /
Mathematical and Statistical Biology Seminar***

Monday, October 28, 2024

12 pm PST (in person)

David Strong Building (DSB) C-130

Join Zoom Meeting

<https://uvic.zoom.us/j/84818303141>

Meeting ID: 848 1830 3141

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Department of Statistics

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Environmental Noise and Population Extinction

In the study of any population, its lifetime, or the time until it becomes extinct, is of prime interest. Very disquieting is the possibility that the population appears to be stable at a healthy level but then soon plummets to extinction. This behaviour may be exhibited by deterministic models that, for instance, incorporate a "strong Allee effect". The bifurcation parameter may cross a critical value that signals the change of the system dynamics from bistable, the stable states being the origin and a non-trivial equilibrium, to a system with one globally asymptotically stable equilibrium, the origin. Details of the dynamics may cause a considerable delay to extinction. Such delay, or long transient, is commonly known as a "ghost" and has been extensively studied.

In this talk, we show that such transients may be considerably extended or shortened by environmental noise. This is joint work with Luis Gordillo of Utah State University.

