



Maud Menten Institute and Mathematical Biology Seminar

Monday, November 2, 2026



1 pm (ABT) – Room 2-180 UComm (in person)

Join Zoom Meeting

<https://ualberta-ca.zoom.us/j/93260471119>

Meeting ID: 932 6047 1119



Join watch parties

UManitoba

2pm (CT)

225 St. Paul's College

UVic

12 pm (PT) Clearihue A-313

Hermann Eberl

University of Guelph

Chaos in the Hive and Beyond: A Multiscale Model of Nosemosis in an Apiary

Nosema ceranae is microsporidian fungal parasite, originally of *Apis ceranae*, the Eastern Honeybee, that meanwhile jumped host and can also be found in *Apis mellifera*, the Western Honeybee. It is the causative agent of Nosemosis, a widespread honeybee gut disease. We present a model for nosemosis in a bee colony that we extend then to a model for an entire apiary, accounting for two routes of transmission (direct and indirect), and for seasonal variations in model parameters. For a single colony this is a model of 5 ODEs, for an apiary with n colonies it becomes a model of $5n$ ODEs. Extensive numerical simulations and scrutinisation suggest that the model in this setting for a small apiary with 16 colonies can have a chaotic regime, depending on parameters. We will explore what causes this and discuss whether this is realistic behavior or an artifact of model assumptions.