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*A Simple Spatial Model for Tick Dynamics Involving Diapause*

Ticks are the second most effective means for vector-borne diseases worldwide. There has been a northward spread of ticks across Canada due to various factors including climate change.

In this talk, we consider tick dynamics with a special focus on diapause. Here we analyze how several ecological factors and environment variations affect this phenomenon. Then, we present one of our recent ongoing research projects which incorporates Delay Differential Equations (DDE) to model tick growth and diapause in a two-patch environment. We examine the existence and stability of equilibria and the occurrence of Hopf bifurcations. This is based on a joint work with Xue Zhang and Jianhong Wu.