
PEI YU, University of Western Ontario

Bifurcation Analysis on an HIV-1 Model with Time Delays

In this talk, we present a more realistic model for HIV-1 infection with two time delays, one for the average latent period of cell infection and the other for the average time needed for the virus production after a virion enters a cell. It is shown that, similar to the model without time delays, as the reproduction number of the system is varied, the model undergoes a series of bifurcations through infection-free equilibrium, single-infection equilibrium and double-infection equilibrium, leading to a Hopf or double-Hopf bifurcation. We also show that only the model with time delays may have double-Hopf bifurcation. Evidences indicate that larger delays may be able to help eradicate the virus.