

Delay and Bifurcation in Ordinary Differential Equations with Application to Biology

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Abstract.

Many physical and biological processes such as transmission, gestation, maturation and reproduction take time to complete. These times are usually incorporated in mathematical models as delays. The introduction of delays in differential equations changes their solution, may change the uniqueness of solutions and may change the stability of the equilibrium points. The delays can also change the bifurcation diagrams obtained as other parameters in the model are varied. In this presentation we study the interaction between delay and bifurcation parameters for a virus propagation mathematical model and show the bifurcation diagram changes. Other models with delays will also be presented.