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Computing Dynamical Systems: Examples

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Abstract:

Many discoveries in dynamical systems theory have been made through intensive numerical investigations of specific systems. This series of lectures will discuss several examples, illustrating the use of different computational methods and software. These will include the forced van der Pol and Duffing systems as well as models of neuronal bursting and chemical mixed mode oscillations. The lectures will discuss dynamical phenomena found in systems with multiple time scales and discuss the numerical difficulties created by multiple time scales.