1077-D5-787          **Itai Seggev\*** (`itais@wolfram.com`), Wolfram Research, 100 Trade Center Drive, Champaign, IL 61820. *Becoming One with Bifurcations in 3D!*

In this talk we will argue that bifurcations in ordinary differential equations are best understood by means of "3D bifurcation diagrams". By plotting the rate function–as a function of both the dependent variable and the bifurcation parameter–and slicing it with appropriate planes, the stability and nature of a bifurcation can be determined. A Mathematica package for automatically creating these diagrams from a rate function will be presented. (Received September 12, 2011)