

1046-O1-1153 **Robert J. Decker*** (rdecker@hartford.edu), University of Hartford, Mathematics Dept, 200 Bloomfield Ave., West Hartford, CT 06117. *Mathlets for Continuous and Discrete Dynamical Systems*. Preliminary report.

Interactive math applets (mathlets) allow the user to experience mathematical relationships in ways that are impossible with any other approach. The presenter has created a number of mathlets targeted at many levels, including precalculus, calculus, differential equations and dynamical systems. This talk will focus on mathlets that can be used in a typical first course in differential equations, and in a follow-up course on dynamical systems (continuous and discrete). Mathlets that target the following areas will be demonstrated: bifurcations of autonomous equations in one and two dimensions, periodic solutions and the Poincare map, relationships between discrete iterated maps and differential equations via the Poincare map and via numerical approximations, bifurcations and Lyapunov exponents for iterated maps, and strange attractors for both discrete and continuous systems. Besides being dynamic (immediate response to changes in initial conditions or parameters), many of the applets use side-by-side multiple views of the system being studied (such as phase plot with time plots) to drive home conceptual understanding. The mathlets can also be used for demonstration, in conjunction with labs/projects, or for independent undergraduate research. (Received September 14, 2008)