

MINI-CONFERENCE
*Path Following and Boundary Value Problems:
A Continuing Influence in Dynamics*
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Continuous and discontinuous phase resetting curves

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Abstract

One of the classic ways to characterize biological or other oscillators is to measure the resetting of the oscillation as a function of the amplitude and phase of the stimulus. Topological properties of resetting curves reflect the biological oscillator-stimulus interaction. Although predictions can be made based on simple geometric concepts, careful experimental tests of the predictions are rare, and sometimes surprising. In this talk I consider mathematical and experimental issues involved with the resetting of oscillations associated with limit cycles in ordinary differential equations representing biological oscillations, as well as in partial differential equations representing the propagation of an excitation wave in a one-dimensional ring. These problems are relevant to problems associated with the initiation and termination of serious cardiac arrhythmias.