

MODERN NUMERICAL CONTINUATION METHODS FOR BIOLOGICAL SYSTEMS

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Numerical continuation methods allow for effective computations for a wide variety of parameter dependent problems. They are particularly well-suited to produce parametric diagrams, e.g., to illustrate the dependence of a steady state for an ODE upon input parameters. Yet, their uses are much broader as recently many new techniques have been developed. In my talk, I shall outline, how to utilize these techniques via biological examples in the context of epidemic models given by ODEs [4, 6], for competing neuronal populations and predator-prey models given by SDEs [5, 8, 10, 2], for random ODEs [1], and for various reaction-diffusion PDEs [7, 9, 3, 11].

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