WORKSHOP
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PDEcont: a package for time simulation based numerical bifurcation analysis

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Abstract

In this presentation, we will briefly outline the basic principles of the Newton-Picard method for steady-state and periodic solutions implemented in PDEcont. From this, we can specify the interfaces between PDEcont and the user's time simulation code. We will walk through the implementation of a simple reaction-diffusion problem and show how some results can be obtained by running PDEcont and the (optional) Matlab postprocessing. Since computations for PDEs are still quite time-consuming, the demo will be limited to a 1D reaction-diffusion model and not all computations can be done in real-time. We will however show some results obtained for larger models, including a fluid flow model.