

## Model Reduction of Dynamical Systems

### Exercise 4

16 June 2017

**Problem 1.** *Proper Orthogonal Decomposition (POD) method*

Apply the POD method to the nonlinear RC circuit example from the lectures. Compare the trajectories of the original and reduced model.

**Problem 2.** *POD with DEIM*

Implement the POD with the Discrete Empirical Interpolation Method (DEIM) in order to reduce the computational complexity of the nonlinear function in the RC circuit example. Plot the output of the original, the POD reduced model, and the POD-DEIM reduced model and compare the results.