

*Data driven feedback control of nonlinear PDEs using the Koopman operator*

**Sebastian Peitz** (Paderborn University), Stefan Klus

In this talk we present a data driven reduced order modeling approach for control of nonlinear PDEs which relies on the Koopman operator. We construct a bilinear surrogate model via linear interpolation between two Koopman operators corresponding to constant controls. Using a recent convergence result for Extended Dynamic Mode Decomposition, convergence of the reduced order model based control problem towards the true optimum can be guaranteed if the control system depends linearly on the input. The resulting feedback controller is used to control the Burgers equation as well as the flow around a cylinder governed by the Navier-Stokes equations.