



Universität Stuttgart



# Kolloquium des Fachbereichs Mathematik

Es spricht am Montag, **03. Juni 2024** um **14:00 Uhr**

**Professor Dr. Peter Benner** (Max-Planck-Institut Magdeburg)

zum Thema: **"Learning nonlinear dynamical systems from data, with stability certificates"**

## Abstract

We discuss the problem of inferring the governing equations of dynamical systems from (time series) data. In the first part of the talk, we review connections to the classical system identification problem studied in control theory for more than 60 years. The rise of data science and machine learning in the last decade has considerable impact on this field. Therefore, in the second part we will discuss in particular several aspects related to (deep) learning nonlinear manifolds and embeddings for representing nonlinear dynamical systems in state-spaces of reduced dimension and strategies for guaranteeing stability properties of the inferred dynamical systems.

Der Vortrag findet im Sitzungssaal 8.122 der Fakultät Mathematik und Physik, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen statt.

Interessenten sind herzlich eingeladen!

Die Dozentinnen und Dozenten des Fachbereichs Mathematik