

## EINLADUNG ZUM MATHEMATISCHEN KOLLOQUIUM

Es spricht

**Feliks Nüske**

(MPI Magdeburg)

zum Thema:

### Generator Extended Dynamic Mode Decomposition for Stochastic Systems

**Abstract:**

The Koopman operator has emerged as a widely used tool for data-driven analysis of complex dynamical systems, with applications ranging across the natural and engineering sciences. For systems driven by stochastic differential equations (SDEs), the generator of the Koopman semigroup is known in analytical form, and can therefore be approximated in a straightforward manner by algorithms such as extended dynamic mode decomposition (EDMD).

In this talk, I will present the basic algorithm and provide an overview of possible applications for data-driven generator models. Subsequently, I will show how the representational power of the model can be improved by introducing complex non-linear model classes. In particular, I will discuss the theoretical and algorithmic treatment of tensor product spaces and reproducing kernel Hilbert spaces.

**Mittwoch, 6. April 2022, 17:00 Uhr, C 113**

*(16:30 Uhr, Kaffee & Kuchen, C 325)*

Alle Interessierten sind herzlich eingeladen.

Das Institut für Mathematik