



Contribution ID: 9

Type: **Invited talk**

## Learning stochastic reduced order models from data

*Wednesday, March 4, 2026 9:45 AM (45 minutes)*

We propose a non-intrusive model order reduction technique for stochastic differential equations with additive Gaussian noise. The method extends the operator inference framework and focuses on inferring reduced-order drift and diffusion coefficients by formulating and solving suitable least-squares problems based on observational data. Various subspace constructions based on the available data are compared.

We demonstrate that the reduced order model produced by the proposed non-intrusive approach closely approximates the intrusive ROM generated using proper orthogonal decomposition. Numerical experiments illustrate the performance by analyzing errors in expectation and covariance. This is joint work with Martin Nicolaus (Potsdam) and Martin Redmann (Rostock).

**Author:** FREITAG, Melina (University of Potsdam)

**Presenter:** FREITAG, Melina (University of Potsdam)

**Session Classification:** Invited talks 7