



Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

Emanuel Pfarr

Julius-Maximilians-Universität Würzburg,
Professur Inverse Probleme am Lehrstuhl für Mathematik IX
(Wissenschaftliches Rechnen)

Mathematical Understanding of Diffusion Models

Generative diffusion models have emerged as a leading approach in modern generative modeling. These models rely on a stochastic process that bridges an unknown data distribution with a well-understood reference distribution. Despite their empirical success, current diffusion models are subject to several sources of error. These include approximation errors arising from the use of neural networks to estimate intractable quantities, discretization errors introduced when simulating continuous-time processes, and truncation errors due to terminating the process at a finite time. By integrating tools from numerical analysis and stochastic process theory, a rigorous mathematical understanding of diffusion models can be developed, enabling a systematic characterization and mitigation of these sources of error.

ACHTUNG Raumänderung!

Ort: **Raum 41.00.006 (Humboldt-Bau, Emil-Fischer-Str. 41)** Zeit: Do. 12.06.2025, 12:00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.
You are cordially invited to this lecture.

gez. Prof. Dr. Alfio Borzi
gez. Prof. Dr. Frank Werner