



Institut für Angewandte Analysis
Universität Ulm
89069 Ulm

ulm university universität
uulm

Prof. Dr. Wolfgang Arendt
Prof. Dr. André Schlichting
Prof. Dr. Anna Dall'Acqua
Prof. Dr. Rico Zacher

OBERSEMINAR IM INSTITUT FÜR ANGEWANDTE ANALYSIS Wintersemester 2024/25

Im Rahmen des Oberseminars findet am Mittwoch, den **22. Januar 2025** folgender Vortrag statt:

ANTONIO ESPOSITO

Università L'Aquila

Deterministic particle solutions for diffusion PDEs via nonlocal approximations

The seminar will focus on the connection between nonlocal PDEs and diffusion equations, including fast, linear, and nonlinear degenerate diffusion. As byproduct of this link, one can obtain a rigorous deterministic particle approximation for the PDEs considered. The analysis is based on a suitable regularisation of the associated free energy, which allows to construct weak solutions as the limit of a sequence of weak measure solutions by using the so-called JKO scheme. Upon proving geodesic convexity of the regularised energies one can obtain convergence of the particle solutions to the nonlocal equations towards weak solutions of the local equations.

The seminar is based on joint works with M. Burger (Hamburg), J. A. Carrillo (Oxford), J. Skrzeczkowski (Oxford), and J. Wu (UCLA).

Der Vortrag findet in **Raum E60, Helmholtzstr. 18** statt.
Beginn: 13 Uhr (s.t.). Alle Interessierten sind herzlich eingeladen.

W. Arendt, A. Dall'Acqua, A. Schlichting, R. Zacher.