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OBERSEMINAR IM INSTITUT FÜR ANGEWANDTE ANALYSIS Wintersemester 2024/25

Im Rahmen des Oberseminars findet am Montag, den **27. Januar 2025** folgender Vortrag statt:

HIDDE SCHÖNBERGER
TU WIEN

Nonlocal gradients: Fundamental theorem of calculus, Poincaré inequalities and embeddings

In this talk we address the study of nonlocal gradients defined through general radial interaction kernels, which have recently been proposed for nonlocal models of hyperelasticity. Our investigation focuses on the properties of the associated function spaces, which depend on the characteristics of the kernel function. Specifically, we identify almost minimal assumptions such that Poincaré inequalities and compact embeddings into Lebesgue spaces hold. Additionally, we present a fundamental theorem of calculus that enables one to recover a function from its nonlocal gradient through a convolution. This is used to demonstrate embeddings into Orlicz spaces and spaces of continuous functions that mirror the well-known Sobolev and Morrey inequalities for classical gradients. The talk is based on a joint work with José Carlos Bellido Carlos Mora-Corral.

Der Vortrag findet in **Raum E20, Helmholtzstr. 18** statt.
Beginn: 16 Uhr (c.t.). Alle Interessierten sind herzlich eingeladen.

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