Universität Konstanz

Fachbereich Mathematik und Statistik

Prof. Dr. R. Denk, Dr. Markus Kunze

Wir laden recht herzlich zu einem Vortrag im Rahmen des

Oberseminars Partielle Differentialgleichungen

ein:

Dr. Manfred Sauter

(Universität Ulm)

"The approximative trace for Sobolev functions on rough domains: an overview"

Donnerstag, 06. Juni 2019

Beginn: **15:15 Uhr**
Raum: **F0426**

Interessenten sind herzlich willkommen!

R. Denk, M. Kunze

Abstract: In this talk we will give an overview of results and applications for the approximative trace, which is a notion of boundary trace for individual Sobolev functions on general domains. The approximative trace is motivated by the desire to study boundary value problems associated with elliptic operators on irregular domains. While for Lipschitz domains it agrees with the classical trace, in general it exhibits new phenomena and departs from two seemingly essential mainstays: unconditional existence and uniqueness.

We start by talking about origins and motivation behind the development of the approximative trace. Then we give an overview of results concerning the (non-)uniqueness, Lebesgue point properties at the boundary and extension results that allow us to join Sobolev functions along matching approximative traces. Most notably these results are based on geometric measure theory and the theory of special functions of bounded variation. All the required concepts will be introduced along the way. Finally we will outline how this enables us to complete the program suggested by Daners and Bucur (2010) to extend their proof of the Faber–Krahn inequality to general domains.

(eingeladen von Dr. Markus Kunze)