Petru A. Cioica-Licht
University of Kassel, Germany

Function spaces for the analysis of stochastic partial differential equations on non-smooth domains

In this talk I will present a class of weighted Sobolev spaces that have been recently used to analyse the regularity of stochastic partial differential equations (SPDEs) on dihedral angles and polygons. The weights are based on both the distance to the boundary and the distance to the vertex(es) of the domain. The spaces are designed in such a way that they accurately capture both effects: the singularities of the solution caused by the irregularity of the boundary and the singularities caused by the noise. I will focus on basic properties of the spaces and on their suitability for the analysis of SPDEs. Moreover, I will discuss possible extensions of the theory to three-dimensional polyhedral cones.

This is joint work with Markus Weimar (RUB Bochum, DE) and Cornelia Schneider (FAU Nuremberg, DE) as well as Kyeong-Hun Kim (Korea U, KR), Kijung Lee (Ajou U, KR), and Felix Lindner (U Kassel, DE).