

Prof. Dr. Moritz Kassmann, Universität Bielefeld

Integrodifferential operators on bounded domains

We study differential operators of fractional order, which satisfy a maximum principle. These operators are in fact integro-differential operators. We will explain that these objects are natural objects with many relations to other interesting mathematical objects such as semi-groups or Markov jump processes. However, in the talk we concentrate on the PDE perspective. We discuss solvability of the Dirichlet problem and focus on regularity questions needed to study nonlinear problems. We employ techniques from variational calculus and stochastic analysis in order to study corresponding harmonic functions.