THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Geometric Functional Analysis and Probability Seminar

Room 290C ,Ziskind Building
on Thursday, Apr 12, 2018at 13:30

David Ellis (Queen Mary U) Benjamin Fehrman (Max Planck Institute)-

** Double Seminar **

Abstract:

Talk 1: David Ellis (Queen Mary U)
Title: The edge-isoperimetric problem for antipodally symmetric subsets of the discrete cube.
Abstract: A major open problem in geometry is to solve the isoperimetric problem for n-dimensional real projective space, i.e. to determine, for each real number V, the minimum possible size of the boundary of a (well-behaved) set of volume V, in n-dimensional real projective space. We study a discrete analogue of this question: namely, among all antipodally symmetric subsets of {0,1}^n of fixed size, which sets have minimal edge-boundary? We obtain a complete answer to the second question. This is joint work with Imre Leader (Cambridge)

Talk 2: Benjamin Fehrman (Max Planck Institute)
Title: Well-posedness of stochastic porous media equations with nonlinear, conservative noise.
Abstract: In this talk, which is based on joint work with Benjamin Gess, I will describe a pathwise well-posedness theory for stochastic porous media equations driven by nonlinear, conservative noise. Such equations arise in the theory of mean field games, as an approximation to the Dean-Kawasaki equation in fluctuating hydrodynamics, to describe the fluctuating hydrodynamics of a zero range process, and as a model for the evolution of a thin film in the regime of negligible surface tension. Our methods are loosely based on the theory of stochastic viscosity solutions, where the noise is removed by considering a class of test functions transported along underlying stochastic characteristics. We apply these ideas after passing to the equation's kinetic formulation, for which the noise enters linearly and can be inverted using the theory of rough paths.