

# SALZBURG MATHEMATICS COLLOQUIUM

Summer 2015

Pierre Calka (Rouen)

## „Geometric probability and random polytopes“

June 18, 2015

**Abstract:** Mathematical problems dealing with both probability theory and Euclidean geometry have emerged here and there since the 18th century (Buffon's needle problem, Sylvester's four-point problem, Bertrand paradox...). Because of the large scale of applications in experimental science, the domain has been widely developed after 1945, in connection with convex geometry and integral geometry. It was named stochastic geometry in 1969. This talk will be an introduction to several models and classical problems from stochastic geometry. We will then focus on the 150 year-old theory of random polytopes constructed as convex hulls of random inputs. We will survey a few asymptotical results in several cases (points uniformly distributed in a convex body or Gaussian points) and present our main contributions to the field. This is based on several joint works with J. E. Yukich (Lehigh, USA) and T. Schreiber (Toruń, Poland).

Thursday, **15:15-16:00**  
Seminarraum II, 1. Stock