

Department of Mathematical & Statistical Sciences

COLLOQUIUM

“Asymptotic shapes of random polytopes”

Professor Rolf Schneider
Freiburg University, Germany,
PIMS Distinguished Visitor
CRG in Geometric and Harmonic Analysis

Thursday, October 25th, 2007

3:30 p.m. in CAB 657

Abstract:

We consider random polytopes, generated as intersections of closed halfspaces (containing 0) bounded by the hyperplanes of a Poisson process of hyperplanes (satisfying only some homogeneity property under dilatations). The central question (a very general version of D.G. Kendall's problem) asks for the asymptotic shape of the random polytope under the condition that it is large (measured in various ways). The answer depend on the extremal bodies of inequalities of isoperimetric type for certain functionals of convex bodies, and stability results for these lead to estimates for probabilities of large deviations from asymptotic shapes. (Joint work with Daniel Hug and partially with Matthias Reitzner)

***For those attending the Colloquium,
a reception will be held at 4:30 pm in CAB 649.***