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Convex bodies with a rolling ball and intrinsic volumes of random polytopes

This talk is based on joint results with K.J. Böröczky and D. Hug.

We will present asymptotic formulas for the expectation of intrinsic volumes of random polytopes for convex bodies which admit a rolling ball in the model where the random points are selected from the boundary of the convex body. We will also demonstrate that the rolling ball condition cannot be weakened while keeping the validity of the asymptotic formulas. The proof of the main result is based on a technique using the analytic properties of caps of the convex body. We will also point out how this technique is applicable to other models of random polytopes.