

VARIANCES OF NON-EUCLIDEAN RANDOM POLYTOPES

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(Joint work with Ferenc Fodor)

We prove asymptotic upper bounds on the variances of the volume and vertex number of non-euclidean random polytopes, such as spherical random polytopes in spherical convex bodies, and hyperbolic random polytopes in convex bodies in hyperbolic space. We show two ways to prove variance upper bounds: applying the gnomonic projection, one can deduce these results from the weighted random models in the Euclidean space; and a direct proof via a non-euclidean version of the economical cap theorem.