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Asymptotic expected T -functionals of random polytopes with applications to L_p surface areas

Asymptotic formulas are proved for the expected T -functional of the random convex hull of independent and identically distributed random points sampled from the Euclidean unit sphere in \mathbb{R}^n according to a positive continuous density. As an application, the approximation of the sphere by random polytopes in terms of L_p surface area differences is discussed.