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Berry-Esseen bounds for geometric and combinatorial random graphs

Joint with K. Krokowski, A. Reichenbachs and M. Schulte

We discuss two recent applications of the so-called Malliavin-Stein method for normal approximation in the framework of Poisson random measures and Rademacher sequences. Our first application deals with a class of edge-length functionals of the radial spanning tree of a Poisson point process. The latter arises when each point of a stationary Poisson point process in $\mathbb{R}^d$ is connected to its radial nearest neighbor. The second application is concerned with the triangle counting statistic in the classical Erdős-Rényi random graph model $G(n,p)$. We will demonstrate how the Malliavin-Stein technique can be used to find a Berry-Esseen bound if the success probability is of the form $p = \theta n^{-\alpha}$ with $\theta \in (0,1)$ and $\alpha \in [0,1)$.