Stochastic Analysis and Stochastic Geometry

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Abstract:
Stochastic Geometry investigates randomly generated geometric objects. Classical results deal with the computation of expectations, mainly using tools from convex and integral geometry. In most cases distributional results like information about variances and limit distributions are difficult and out of reach.

A recent breakthrough was the introduction of results from stochastic analysis to the discrete case of Poisson random measures. This made it possible to attack distributional questions of geometric problems.

In this talk we will discuss this development, its connection to Stein's method and Malliavin calcul, and give some concrete examples.