

Mathematical Statistics Stockholm University Bachelor Thesis **2019:14** http://www.math.su.se

How many trees can one see in a Poisson forest?

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Abstract

We let each point in a two dimensional homogeneous Poisson process with intensity λ be the center of a disk of radius r. By an argument of scaling, we can assume r = 1 without loss of generality. We ask for how many disks it is possible to draw a straight line from its boundary to the origin with crossing through other disks. We find the expectation to be $e^{-\lambda \pi} \left(\frac{\pi}{\lambda} + \frac{\pi^2}{2}\right)$ and discuss why the variance is difficult to find.

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