

Poisson Thinning by Monotone Factors

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Abstract

Let X and Y be Poisson point processes on the real numbers with rates λ_1 and λ_2 respectively. We show that if $\lambda_1 > \lambda_2$, then there exists a deterministic map f such that $f(X)$ and Y have the same distribution, the joint distribution of $(X, f(X))$ is translation-invariant, and which is monotone in the sense that for all intervals I , $f(X)(I) \leq X(I)$, almost surely.

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Pages: 60-69

Published on: April 16, 2005

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