$S_t \circ c(h)(a_s)_{ti}c(s) + \mathfrak{S}_e m^i n(a_r)$ Department of Mathematics, University of Utah



A formula of harmonic analysis, and intersections of regenerative sets.

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A little over nine years ago, J. Bertoin posed the following problem: If R_1 and R_2 are independent regenerative sets, then find a necessary and sufficient condition for $R_1 \cap R_2 = \{0\}$. In fact, Bertoin prescribes an analytic condition that he conjectures is necessary and sufficient under some regularity assumptions.

After I describe the undefined terms here, I will present a recent solution to this conjecture. It turns out that the solution hinges on developing many different ideas. I will prove, in detail, a non-probabilistic part of the recent solution to this problem. This portion turns out to require an amusing piece of classical harmonic analysis, which might be of independent interest.

This is joint work with Yimin Xiao.