$$S_t\circ c(h)(a_s)_{ti}c(s)+\mathfrak{S}_e m^i n(a_r)$$

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On infima of Lévy processes and application in risk theory

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Let Z be a one-dimensional Lévy process, C an independent subordinator and $X = Z - C$. We discuss the infimum process of X. To be more specific, we are interested in times when a new infimum is reached by a jump of the subordinator C. We give a necessary and sufficient condition that such times are discrete. A motivation for this problem comes from the ruin theory where X can be interpreted as a perturbed risk process. In case Z is spectrally negative, decomposition of X at times when a new infimum is reached by a jump of a subordinator leads to a Pollaczek-Khintchine-type formula for the probability of ruin.