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Levy walk with rests: Escape from bounded domain

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The Levy walk processes with rests restricted to a region bounded by two absorbing barriers are discussed. The waiting time between the jumps is given by an exponential distribution with a constant jumping rate and with a position-dependent jumping rate. The time of flight for both ranges of α : lower $(0, 1)$ and higher $(1, 2)$, is considered.

For constant jumping rate two limits are taken into account: of short waiting time that corresponds to Levy walks without rests, and long waiting time which exhibits properties of Levy flights model. The quantities describing the escape process: first passage time distribution, mean first passage time are analysed. The analytical results are compared with Monte Carlo trajectory simulations.

Summary

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