

FLUCTUATIONS OF SUBEXPONENTIAL LÉVY PROCESSES WITH INFINITE MEAN

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We consider the first passage time problem for Lévy processes, emphasizing heavy tailed cases, with a view to applications in insurance and operational risk. Under mild assumptions, namely, drift to infinity a.s. of the process, possibly at a linear rate (the finite mean case), but possibly much faster (the infinite mean case), together with subexponential growth for the positive tail of the underlying distribution or canonical measure, and regular variation or maximum domain of attraction conditions for the negative tail, we obtain very explicit and detailed descriptions of the asymptotic behaviour of the processes. No overt moment conditions are imposed. Particular attention is paid to the passage time itself, as well as to the position of the process just prior to passage, and the overshoot of a high level.