Stable distributions and the ruin theory

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Abstract. Gaussian distributions and processes are studied in various applications and their utility in stochastic models is well accepted. However, finance and insurance analyzes often indicate the presence of heavy tails, so stable processes prove to be an appropriate resource for heavy tail probabilistic models. Accordingly, the research deals with the classic risk model for insurance activity, which is part of risk theory, one of the branches of actuarial mathematics.

The theme guides a scientific initiation process that explores the treatment in the theoretical model of the temporal evolution of the capital of a continuous insurer, essentially the so-called classical model that is based on a renewal process, whose study began considering Poisson distribution and ends considering stable distributions, thus the theory of stable distributions and α-stable Lévy processes will be explored.

The central interest is to study uncertainty and to analyze the processes that define the paths taken by insurers to fulfill their obligations, it means the moments the company needs to pay any of the claims.

References

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