

Title: Large deviations and their applications in insurance mathematics
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Abstract: In the present work we study large deviations theory. We discuss heavy-tailed distributions, which describe the probability of large claim occurrence. We are interested in the use of large deviations theory in insurance. We simulate claim sizes and their arrival times for Cramér-Lundberg model and first we analyze the probability that ruin happens in dependence on the parameters of our model for Pareto distributed claim size, next we compare ruin probability for other claim size distributions. For real life data we model the probability of large claim size occurrence by generalized Pareto distribution.