ABSTRACT

The Application of Discounted PH-renewal Sums

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For the discounted PH-renewal sum $Z(t) = \sum_{k=1}^{N(t)} e^{-\delta T_k} X_k$, Léveillé, Garrido and Wang (2008) obtain a close form of the moment generating function (m.g.f.) of $Z(t)$ for the Poisson process with PH claim severities. They also give an homogenous differential equation for m.g.f. if inter-arrival times are Erlang(n).

In this talk we illustrate how to get distributions of $Z(t)$ by inverting Laplace transform. Series and transformation methods are discussed. We also consider how to calculate stop-loss premium, Value-at-Risk (VaR) and Conditional Tail Expectation (CTE) if means of inter-arrival times are very small.

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