ABSTRACT

The Application of Discounted PH-renewal Sums

Ya Fang Wang
Concordia University, Montreal, Canada

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.

Joint work with José Garrido, Concordia University, Montreal, Canada and Ghislain Léveillé, Université Laval, Québec, Canada