

On the Range Process of a Lévy Risk Process with Fair Valuation of Insurance Contract

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Abstract

In this talk, we will present the range process of Lévy risk processes through the characterization of some fluctuation results pertaining to inverse range time. In particular, we derive explicit expressions for Laplace transforms associated with occupation times and many related quantities. The range process under the Poissonian observation scheme will also be introduced. We further study extremum levels up to the inverse range. Explicit results under the Brownian risk process and the Cramér-Lundberg risk model will be presented. As an application, we present an extensive numerical analysis on fair valuation of insurance contracts.

Keywords: Range process, Scale functions, Lévy risk processes

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