

## **Finite-time ruin problems in Sparre Andersen models with arbitrary interclaim times**

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An explicit expression for the joint distribution of the time to ruin and the number of claims at ruin is derived in Sparre Andersen models with arbitrary interclaim times. We first assume claim sizes are exponential and make use of Lagrange's expansion theorem to obtain a closed-form expression for the aforementioned ruin quantity. In the second part of my talk, claim sizes are assumed to be a finite sum of exponentials. An extension of Lagrange's expansion theorem in multiple dimensions is used to examine the density of the time to ruin.