

Seminário

Grupo de Probabilidades e Estatística

03 de dezembro de 2025

14:00

Sala Sousa Pinto

Refining Risk Measures in Heavy-Tailed Distributions

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Abstract

In statistical extreme value theory, risk is commonly quantified using either the value at risk (VaR_q), the loss threshold exceeded with probability q , or the conditional tail expectation (CTE_q), defined as $E[X|X > VaR_q]$, for q in $(0, 1)$. This work focuses on heavy-tailed models, specifically those with Pareto-type distributions and a positive extreme value index (EVI), which are prevalent in various applied domains.

For such models, the classical Hill estimator, based on the average of the k log-excesses over a high threshold, is widely used for semi-parametric estimation of both VaR and CTE . In this study, we present improvements to the analysis of these risk measures by employing more robust extreme-value index (EVI) estimators based on generalised means, thereby reducing potential bias. These refinements aim to enhance the reliability and accuracy of tail risk assessment in heavy-tailed settings.

Joint works with Maria Ivette Gomes, Frederico Caeiro and Fernanda Figueiredo.

This seminar is supported by CIDMA – Center for Research and Development in Mathematics and Applications, through FCT – Portuguese Foundation for Science and Technology, within project UID/4106/2025.