

Construction and sampling of nested Archimedean Lévy copulas

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The talk is based on the joint work with Marius Hofert

Session: 22. Multivariate stochastic modelling in finance, insurance and risk management

Lévy processes are of growing use in econometric and financial modeling due to their simplicity and their flexibility in modeling tails of distributions. In multivariate models, the dependence structure between the dimensions may be captured by Lévy copulas. However, flexible high-dimensional Lévy copulas are still rare in the literature. We therefore introduce the class of nested Archimedean Lévy copulas. This class models dependencies between Lévy processes hierarchically and overcomes the inherent symmetry linked to Archimedean Lévy copulas. Additionally, a fast sampling algorithm for multivariate Lévy processes with dependence structure specified by Archimedean or nested Archimedean Lévy copulas is derived from a Marshall–Olkin-type algorithm.