

## Bi-free extreme values

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In extreme value analysis and ordered statistics, one studies the componentwise maximums of independent random vectors and their asymptotic behavior. The free analog extremal type theorem was ascertained by Arous and Voiculescu according to Ando's spectral order on operators. Only three different types of distributions describe free extreme value ones, each of which has a correspondent in the classical theory. Recently, Voiculescu established the theoretical foundation for extremal analysis in the framework of bi-free probability. In this talk, we will present the bi-free extreme value theory following Voiculescu's introductory work. This theory comprises a significant tool in probability and statistics, named copula, which is widely used to describe the dependence structure between marginal distributions. We will outline the connection between classical and bi-free extreme value theory and some popular parametric copula models used in our discussions. We will also talk about the concept of max-infinite divisibility.

*This is joint work with JC Wang.*

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