

Gastvortrag

Mittwoch, 10. Jänner 2018
15.00 Uhr
Hörsaal 415

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Characterizations of Copulas for which the Bounds of Kendall's Tau are Attained

Abstract:

For the most popular measures of concordance, like Kendall's tau, Spearman's rho and Gini's gamma, the maximum value is equal to 1 and is attained by the upper Fréchet-Hoeffding bound and, in the bivariate case, the minimum value is equal to -1 and is attained by the lower Fréchet-Hoeffding bound. In this class, Kendall's tau is particular since its minimum value (which depends on the dimension $d \geq 2$ is known and is attained by several distinct copulas whenever $d \geq 3$. In the present talk, we characterize the classes of all copulas which maximize or minimize the value of Kendall's tau. We first show that the upper Fréchet-Hoeffding bound is the only copula maximizing Kendall's tau. We then provide a characterization of the collection of all copulas minimizing Kendall's tau and we show that this collection is a singleton if and only if $d = 2$. As a complementary result, we show that the order transform of any copula minimizing Kendall's tau, which is related to the order statistic of certain random vectors, minimizes Kendall's tau as well.

Einladender: Wolfgang Trutschnig