



Mathematisches Kolloquium

Im Rahmen des Mathematischen Kolloquiums findet am

Mittwoch, 30.09.2015

16.15 Uhr

Raum HS 9

folgender Vortrag statt:

Calibrating of dependence between random elements.

Abstract:

Attempts to quantify dependence between random elements go back to Gebelein (1938) who introduced the maximum correlation coefficient and Renyi (1959). One can notice a recent interest to the area manifested in introducing new numerical measures of dependence, see Szekely et al. (2007), Szekely and Rizzo (2009), and reviews of different measures in Reshef et al. (2011) and Reimherr and Nicolae (2013). My understanding is that the main application of measures of dependence is to testing the hypothesis of independence and different measures differ by their performance at different alternatives.

In the talk properties of a natural measure of dependence are presented. Some of them should be satisfied, in my opinion, by any natural measure of dependence. We construct a calibrated scale of dependence of random element X from random element Y . It is based on the dimension of the range of the operator $E\{\varphi(X)|Y\}$, the projector of the subspace $L^2(X) \subset L^2(X, Y)$ into the subspace $L^2(Y)$ of $L^2(X, Y)$, the Hilbert space of functions $g(X, Y)$ with

$$E|g(X, Y)|^2 = \int_x \int_y |g(x, y)|^2 dP(x, y) < \infty.$$

For independent X and Y the range is one-dimensional and this property is characteristic of independence. Numerical characteristics are introduced that characterize the setups with finite-dimensional ranges.

Gast:

Prof. Dr. A. M. Kagan, University of Maryland,
(derzeit: Fulbright-Professor an der Karls-Universität Prag)

Gastgeber:

Prof. Dr. L. Mattner

Ab 15.45 wird im E 10 Kaffee/Tee und Gebäck gereicht.