Oberseminar Mathematische Stochastik

Mittwoch, 25. Februar 2015, 16:00 Uhr, M 5

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Asymptotic expansions in free probability theory

Abstract:
In this talk we discuss a new approach to derive asymptotic expansions in free probability theory. In a class of classical limit theorems asymptotic expansions can be obtained by a sequence of functions which are smooth, symmetric, compatible and have vanishing first derivatives at zero. In the free case where a new type of convolution is used, the same scheme can be applied. We comment about a possible generalization of our method to a multivariate free central limit theorem. For this, we introduce operator-valued free random variables and the linearization trick, which allows to reduce a multivariate scalar-valued problem to an analogues one-dimensional operator-valued one.