

Sharp estimates on Gaussian polynomials

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The subject of my talk is part of my recent research about good estimates on the tail distribution of random Gaussian polynomials and U -statistics. My goal was to get good estimates on such expressions with the help of their variance and to apply these results in the study of some non-trivial non-parametrical maximum likelihood problems.

In this talk I discuss a slightly different but related topic. Some mathematicians try to find such more refined estimates about the tail-distribution of Gaussian polynomials and U -statistics which depend beside the variance of the Gaussian polynomial or U -statistic on some other appropriately introduced quantities. Such estimates are presented in Latała's paper [1].

Latała's paper deserves a closer study. It contains some interesting ideas, but there are some problems related to it. The proof is hard to read, and what makes the situation worse it contains some errors. The aim of my talk is to try to explain the idea of the proof and to correct Latała's errors. This enables us to get some valid but weaker estimates than those of Latała.

Reference

- [1] Latała, R. (2006) Estimates of moments and tails of Gaussian chaoses. *Annals of Probability* **34**, 2315–2331