

GAUSSIAN MIXTURES AND GEOMETRIC APPLICATIONS

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We say that a symmetric random variable X is a Gaussian mixture if X has the same distribution as YG , where G is a standard Gaussian random variable, and Y is a positive random variable independent of G . We apply this simple and well known notion to derive sharp constants in Khintchine inequalities for vectors uniformly distributed on the unit balls with respect to p -norms and provide short proofs to new and old comparison estimates for volumes of sections and projections of such balls. We study the so-called B-inequality in the context of exponential measure, as well as correlation type inequalities on the unit sphere and for symmetric p -stable random vectors. Based on a joint work with Alexandros Eskenazis and Tomasz Tkocz.

REFERENCES

- [1] A. Eskenazis, P. Nayar, T. Tkocz, *Gaussian mixtures: entropy and geometric inequalities*, arXiv:1611.04921