



ID de Contribution: 2

Type: Non spécifié

## Marta Strzelecka: Norms of structured random matrices

*lundi 29 mai 2023 14:45 (45 minutes)*

We consider the structured Gaussian matrix  $G_A = (a_{ij}g_{ij})$ , where  $g_{ij}$ 's are independent standard Gaussian variables. The exact behavior of the spectral norm of the structured Gaussian matrix is known due to the result of Latała, van Handel, and Youssef from 2018. We are interested in two-sided bounds for the expected value of the norm of  $G_A$  treated as an operator from  $\ell_p^n$  to  $\ell_q^m$ . We conjecture the sharp estimates expressed only in the terms of the coefficients  $a_{ij}$ 's. The conjectured lower bound holds up to the constant depending only on  $p$  and  $q$ , and the upper bound is true up to the multiplicative constant depending linearly on a certain (small) power of  $\ln(mn)$ . This is joint work with Radosław Adamczak, Joscha Prochno, and Michał Strzelecki.

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