On the operator norm of a random matrix with a polynomially decaying metric correlation structure

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In this talk, we consider a $N\times N$ Hermitian random matrix with a polynomially decaying metric correlation structure.

Trivial a priori bound shows that the operator norm of this model is stochastically dominated by $\sqrt{N}$. However, by calculating the trace of the moments of the matrix and using the summable decay of the cumulants, the estimate on the norm can be improved to a bound of order one. This is a rotation project with László Erdős.