
MARCELO CAMPOS, Instituto de Matemática Pura e Aplicada
Singularity of random symmetric matrices revisited

Let M_n be drawn uniformly from all ± 1 symmetric $n \times n$ matrices. I'll describe recent work where we show that the probability that M_n is singular is at most $\exp(-\Omega(\sqrt{n \log n}))$. This represents a natural barrier in recent approaches to this problem and improves the best-known previous bound by Campos, Mattos, Morris and Morrison of $\exp(-\Omega(\sqrt{n}))$ on the singularity probability. In particular I'll show a new Inverse Littlewood-Offord type theorem, which is simpler and stronger in some ways than previous theorems of this type.

This is joint work with Matthew Jenssen, Marcus Michelen, Julian Sahasrabudhe.