

Seminar 2022

Math

The distribution of the cokernel of a random p -adic integral
matrix

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Abstract: Let p be a prime. Friedman and Washington computed the distribution of the cokernel of a Haar-random $n \times n$ matrix over the p -adic integers. When n goes to infinity, this distribution converges to the Cohen-Lenstra distribution, which conjecturally predicts the distribution of the p -part of a random quadratic imaginary number field. Since then, this was followed by many other interesting results that computed various asymptotic distributions of cokernels of random p -adic integral matrices when n goes to infinity, but there have been less effort in understanding similar behaviors when n is fixed. In this talk, I will present some surprising results when n is fixed with some explicit exact formulas. This talk is based on two separate joint works, one with Nathan Kaplan and another with Yunqi Liang and Michael Strand, both of which extend former joint work with Yifeng Huang.



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