MATILDE LALIN, Université de Montréal

Arithmetic constants for symplectic variances of the divisor function

In previous work, we formulated some conjectures on the variance of certain sums of the divisor function $d_k(n)$ over number fields, which were inspired by analogous results over function fields. These problems are related to certain symplectic matrix integrals. While the function field results can be directly related to the random matrix integrals, the connection between the random matrix integrals and the number field results is less direct and involves arithmetic factors. We will give heuristic arguments for the formulas of these arithmetic factors and report on some experiments supporting the conjectures. This is joint work with Vivian Kuperberg (ETH Zürich)