On the Probability of Primitive Sets and Generators in Lattices

Phong Nguyen, Inria and CNRS/JFLI/Univ. of Tokyo

We prove a lattice generalization of Dirichlet's result on the density of pairs of coprime integers. Let k vectors be randomly chosen from the discrete Gaussian distribution over a lattice L. We give the probability that the vectors generate L, and the ``dual'' probability that the vectors form a primitive set in L. Our work is related to algorithms.

This is joint work with Loic Pujet.