

CENTRAL LIMIT THEOREMS FOR LATTICE POINT COUNTING ON TESSELLATED DOMAINS

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One of the central problems in the geometry of numbers is the lattice point counting problem in various domains of Euclidean spaces. We will consider the discrepancy functions for lattice point counting on domains that can be nicely tessellated by the action of a diagonal subgroup. Following the approach of Björklund and Gorodnik, We will show that suitably normalized discrepancy functions for lattice point counting on certain tessellated domains satisfy non-degenerate central limit theorem. Furthermore, we will also address the same problem for affine and congruence lattice point counting, proving analogous central limit theorems for them.