Mathematics > Geometric Topology

Covolumes of nonuniform lattices in PU(n, 1)

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This paper studies the covolumes of nonuniform arithmetic lattices in PU(n, 1). We determine the smallest covolume nonuniform arithmetic lattices for each n, the number of minimal covolume lattices for each n, and study the growth of the minimal covolume as n varies. In particular, there is a unique lattice (up to conjugacy) in PU(9, 1) of smallest Euler--Poincar\'e characteristic amongst all nonuniform arithmetic lattices in PU(n, 1). We also show that for each even n, there are arbitrarily large families of nonisomorphic maximal nonuniform lattices in PU(n, 1) of equal covolume.

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