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Title: g -invariant on unary Hermitian lattices over imaginary quadratic fields

Abstract: Let $E = \mathbb{Q}(\sqrt{-d})$ be an imaginary quadratic field for a square-free positive integer d , and let \mathcal{O} be its ring of integers. For each positive integer m , let I_m be the free Hermitian lattice of rank m over \mathcal{O} with an orthonormal basis, let $\mathfrak{S}_d(1)$ be the set consisting of all positive definite integral unary Hermitian lattices over \mathcal{O} that can be represented by some I_m , and let $g_d(1)$ be the smallest positive integer such that all Hermitian lattices in $\mathfrak{S}_d(1)$ can be uniformly represented by $I_{g_d(1)}$. In this talk, we will provide an algorithm to determine the explicit form of $\mathfrak{S}_d(1)$ and the exact value of $g_d(1)$ for all imaginary quadratic fields E , generalizing naturally the Lagrange's four-square theorem.