TOWARDS AN APPROXIMATION PROPERTY FOR TERNARY QUADRATIC LATTICES

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ABSTRACT. Finding an integral analogue to Hasse's local-global principle for quadratic forms has been a driving force behind much recent work in number theory. For quadratic lattices of rank 3 or greater, a satisfactory solution has been obtained, by way of an asymptotic local-global principle. That is, if an integer n is represented by a local lattice L_p at every prime p, then n is represented by L globally, provided that n is sufficiently large. In 1994, Joechner and Kitaoka showed that for lattices of rank 4 and greater, these representations approximate a family of local solutions, for finitely many primes. A consequence of the existence of this approximation property, is a local-global principle for inhomogeneous quadratic polynomials. The next interesting question, and the subject of this talk, is to find an approximation property for ternary quadratic lattices.