

MR655728 (83h:10053) 10C99**Schulze-Pillot, Rainer****Darstellung durch definite ternäre quadratische Formen. (German. English summary)****[Representation by definite ternary quadratic forms]***J. Number Theory* **14** (1982), no. 2, 237–250.

M. Kneser's method of "adjacent lattices" [Arch. Math. (Basel) **8** (1957), 241–250; [MR0090606 \(19,838c\)](#)] is applied to the problem of finding the integers represented by a ternary positive definite integral quadratic form. A list of 14 such forms is given which have the property of representing primitively all integers which are represented primitively by the genus—the list extends significantly earlier results of G. L. Watson [J. London Math. Soc. (2) **13** (1976), no. 1, 97–102; [MR0414489 \(54 #2590\)](#)]. Let p be a prime and let L be a ternary positive definite lattice such that $\mathbf{Z}_p \otimes L$ is semiregular. Define a graph as follows: the vertices are the lattices on $\mathbf{Q} \otimes L$ which are in the genus of L and which differ from L only at p ; two lattices (vertices) are joined by an edge if they are adjacent in Kneser's sense. This graph turns out to be the Bruhat-Tits building of the group $\mathbf{Spin} V_p \cong \mathbf{SL}_2(\mathbf{Q}_p)$.

Reviewed by *Carl Riehm*

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