CONSTRUCTION OF ARITHMETIC AUTOMORPHIC FUNCTIONS FOR SPECIAL CLIFFORD GROUPS

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An important problem in the theory of arithmetic automorphic functions is to construct, for a reductive algebraic group over Q which defines a bounded symmetric domain, a system of canonical models [2], [6], [18]. For the similitude group of a hermitian form over a quaternion algebra whose center is a totally real field, this is solved by Shimura [17], and for the similitude group of a hermitian form with respect to an involution of the second kind of a central division algebra over a *CM*-field, by Miyake [8]. In this paper, we show that this also can be done for the special Clifford group of a quadratic form Q over a totally real algebraic number field. (We have to impose certain conditions on the signature of Q in order that G defines a bounded symmetric domain, see 1.1.)

That this is possible is suggested by Satake's works [11], [12]. Instead of his symplectic embeddings, we introduce in § 3 an embedding of G into a reductive group $G^{\cdot}$ of Shimura type. We then show that (§ 4) the system of canonical models constructed by Shimura for $G^{\cdot}$ gives rise to a system of canonical models for G. Here we adopt the technique employed by Shimura in [17, § 6] (see also [2, § 5]).

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Notation

We refer to [1], [3], [5] and [9] for general information concerning quadratic forms. For the definition of the Clifford algebra C of a quadratic form Q on a vector space V over a field F of characteristic $\neq 2$, see Chapter II of [1]. The subalgebra E of C consisting of all even