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VERY AMPLE INVERTIBLE SHEAVES OF NEW TYPE ON ABELIAN VARIETIES

By

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Introduction.

In 1919 Comessatti [1] proved the following theorem, which we learned by Lange's paper [2].

THEOREM (Comessatti). *Let* Jac(C) *denote the Jacobian variety of a smooth projective curve* C *of genus* 2. *If an ample divisor* D *on* Jac(C) *satisfies* $(D^2)=2$ *and* $(C\cdot D)=n$ *for* $n\geqq 3$, *then the divisor* $C+D$ *is very ample.*

The aim of the present paper is to generalize this theorem. Our result is

THEOREM. *Let* A *be an abelian variety defined over an algebraically closed field of any characteristic. Let* L *and* M *be ample invertible sheaves on* A *with* $h^0(A, L)=h^0(A, M)=1$. *Let* D *and* E *be positive divisors such that* $L=\mathcal{O}_A(D)$ *and* $M=\mathcal{O}_A(E)$. *Assume that any component of* D *is not algebraically equivalent to a component of* E. *Then* $L\otimes M$ *is very ample.*

We prove the theorem in §1. In §2 we show that the Commessatti's theorem is a special case of ours. In the last §3 we discuss projective embeddings of abelian varieties with real multiplication.

At first I set up unnecessary assumption in the theorem. I could find the above theorem as a result of the referee's pertinent suggestion. Here I thank the referee for his kind advice.

1. Proof of theorem.

We shall use the following notation. For details we refer to [4]. Let A be an abelian variety of dimension g defined over an algebraically closed field k of arbitrary characteristic and let $\hat{A}=\mathrm{Pic}^0(A)$ denote its dual variety. The translation $x\to x+a$ by a point a of A is denoted by T_a. We denote by P the

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