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ON AUTOMORPHISMS OF NODAL ENRIQUES SURFACES

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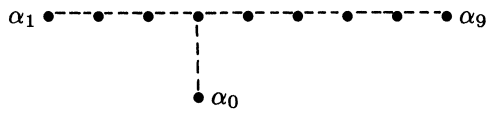
1. Introduction. The purpose of this note is to announce a description of the automorphism group of a generic Enriques surface which contains a nonsingular rational curve (a nodal Enriques surface). The automorphism group of a generic unnodal Enriques surface was recently computed by W. Barth, C. Peters, and V. Nikulin (see [**B-P**]). As opposed to the transcendental methods of these authors, we work over any algebraically closed field of characteristic $p \neq 2, 3, 5, 7$, and 17. Our notion of a generic nodal surface is very explicit: We assume that our surface belongs to an open Zariski subset of the 9-dimensional variety parametrizing Reye congruences of lines in $\mathbf{P}^3$. It is known that every generic nodal Enriques surface over the complex numbers is isomorphic to a Reye congruence [**Co**].

The main geometric ideas of this paper belong to A. Coble: We interpret differently and reconstruct his results on the number of the projective classes of quartic symmetroid surfaces congruent with respect to regular Cremona transformations [**Cb 1, Cb 2**].

2. Main results. Let Q be the integral quadratic form of rank 10 defined by the Dynkin diagram of type $T_{2,4,6}$



and let W be the corresponding Weyl group generated by the reflections in the vectors α_i (see, for example, [**Do**]). It is known that W contains a unique normal subgroup $\overline{W}(2)$ containing the 2-congruence subgroup $W(2)$ such that $W/\overline{W}(2)$ is isomorphic to the finite group $\mathrm{Sp}(8, \mathbf{F}_2)$ [**Gr**].

THEOREM 1. *The automorphism group of a generic nodal Enriques surface is isomorphic to* $\overline{W}(2)$.

Recall that this result is very similar to the cited result of Barth-Peters and Nikulin, where the answer is given in terms of the quadratic form defined by the Dynkin diagram of type $T_{2,3,7}$ (isomorphic to the Néron-Severi lattice of an Enriques surface).

THEOREM 2. *The number of nonisomorphic nonspecial representations (resp. special) of a generic nodal Enriques as a double plane is equal to* 34,780 (*resp.* 136).

We refer to [**AS**, Chapter X] for the definition of special and nonspecial double plane representations of Enriques surfaces.

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