



The Fano surface of the Klein cubic threefold

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Résumé en anglais We prove that the Klein cubic threefold FF is the only smooth cubic threefold which has an automorphism of order 1111. We compute the period lattice of the intermediate Jacobian of FF and study its Fano surface SS . We compute also the set of fibrations of SS onto a curve of positive genus and the intersection between the fibres of these fibrations. These fibres generate an index 22 subgroup of the Néron-Severi group and we obtain a set of generators of this group. The Néron-Severi group of SS has rank $25 = h_1, 125 = h^{1,1}$ and discriminant 111011^{10} .

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