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On the $\mathrm{PSL}_2(\mathbb{F}_{19})$ -invariant cubic sevenfold. (English) Zbl 1295.11068
J. Algebra 413, 1-14 (2014).

Summary: It has been proved by *A. Adler* [J. Algebra 72, 146–165 (1981; [Zbl 0479.20020](#))] that there exists a unique cubic hypersurface X^7 in \mathbb{P}^8 which is invariant under the action of the simple group $\mathrm{PSL}_2(\mathbb{F}_{19})$. In the present note we study the intermediate Jacobian of X^7 and in particular we prove that the subjacent 85-dimensional torus is an Abelian variety. The symmetry group $G = \mathrm{PSL}_2(\mathbb{F}_{19})$ defines uniquely a G -invariant Abelian 9-fold $A(X^7)$, which we study in detail and describe its period lattice.

MSC:

- [11G10](#) Abelian varieties of dimension > 1
- [14J50](#) Automorphisms of surfaces and higher-dimensional varieties
- [14J70](#) Hypersurfaces and algebraic geometry

Keywords:

[cubic sevenfold](#); [automorphism group](#); [intermediate Jacobian](#); [period lattice](#)

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