

**Džambić, Amir; Roulleau, Xavier****Automorphisms and quotients of quaternionic fake quadrics.** (English) Zbl 1292.14018

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A  $\mathbb{Q}$ -homology quadric surface is a normal projective algebraic surfaces with the same Betti number as the quadric surface in  $\mathbb{P}^3$ , i.e.,  $b_1 = 1$  and  $b_2 = 2$ . The article under review is devoted to study the so-called quaternionic fake quadrics, i.e., quadric surfaces of general type of the form  $\Gamma \backslash \mathbb{H} \times \mathbb{H}$  with  $\Gamma$  a cocompact irreducible arithmetic lattices in  $\text{Aut}(\mathbb{H}) \times \text{Aut}(\mathbb{H})$ , where  $\mathbb{H}$  is the complex upper half plane. The authors study the possible automorphism group of such a surface, provide examples, and obtain the minimal desingularization of the quotient of a quaternionic fake quadrics by a group of automorphisms, some of which give new examples of surfaces of general type with  $q = p_g = 0$ .

Reviewer: [Xin Lu \(Mainz\)](#)**MSC:**

- [14G35](#) Modular and Shimura varieties
- [14J10](#) Families, moduli, classification: algebraic theory
- [14J29](#) Surfaces of general type
- [14J50](#) Automorphisms of surfaces and higher-dimensional varieties
- [11F06](#) Structure of modular groups and generalizations; arithmetic groups
- [11R52](#) Quaternion and other division algebras: arithmetic, zeta functions

Cited in 1 Document**Keywords:** $\mathbb{Q}$ -homology quadrics; surfaces with  $q = p_g = 0$ ; fake quadrics; surfaces of general type; automorphisms**Full Text:** [DOI](#) [arXiv](#)