



## Ergodic geometry and discrete groups in irregular worlds / beyond Riemann

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### Projective reflection groups of finite covolume on Hilbert geometries

#### Abstract

Projective reflection groups have been a versatile tool for constructing discrete group actions on various spaces. When such a group  $\Gamma$  is irreducible and admits a non-abelian free quotient, it naturally produces a properly convex domain  $\Omega$  on which it acts by isometries of Hilbert geometry. In such a case, one may ask when exactly  $\Gamma$  has finite covolume with respect to the Busemann measure, and what kind of ends the orbifold  $\Omega/\Gamma$  can contain. Recently L. Marquis answered the above question (with a mild extra assumption) in terms of quasi-perfectness, a geometric property of the fundamental polytope of  $\Gamma$ . In this talk I will show that, in a general setting, quasi-perfectness is equivalent to  $\Gamma$  having finite covolume. As a corollary, we will see that any end of a finite-volume reflection orbifold is a generalized cusp of type 0. This talk is based on joint work with Balthazar Fléchettes.