Mathematics Department
University of Fribourg

Friday, 13.09.2024

Time: 16:30
Pérolles II
Lecture hall G 120

Public PhD presentation

Naomi BREDON

Université de Fribourg

On the existence of hyperbolic Coxeter groups

Abstract: *A Coxeter polyhedron in a standard geometric space is a convex polyhedron of finite volume all of whose dihedral angles are integral submultiples of π. The group generated by the reflections in the facets of a Coxeter polyhedron is called a Coxeter group. In contrast to the spherical and Euclidean cases, Coxeter groups acting on hyperbolic spaces of dimensions beyond 3 are far from being classified.*

During my PhD, I studied two different aspects of hyperbolic Coxeter groups. In this presentation, I will focus on my contribution to the classification problem of hyperbolic Coxeter groups.

First I will provide a friendly introduction to the subject (in French). Then, I will give an overview of known classification results of hyperbolic Coxeter polyhedra and present the classification of a new family of polyhedra, the ADEG-polyhedra. This family consists of all polyhedra with mutually intersecting facets whose dihedral angles are $\frac{\pi}{2}, \frac{\pi}{3}$ and $\frac{\pi}{6}$. I will provide the main ingredients for the proof, together with some properties of the new Coxeter polyhedron $P_\star$ in $\mathbb{H}^9$.

The presentation will be followed by an Apéro.