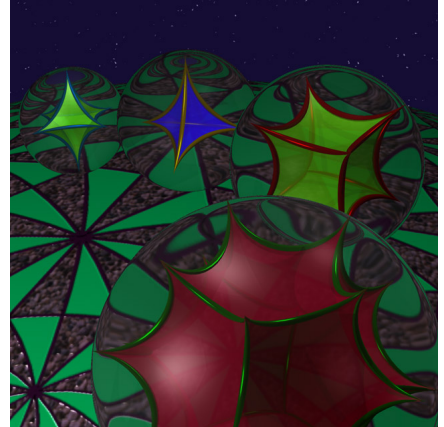


**Oberseminar Geometrie**  
Department of Mathematics  
University of Fribourg  
Physics 2.52  
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## Hyperbolic manifolds and Coxeter groups

Hyperbolic  $n$ -manifolds exist for every  $n \geq 2$ , however, their effective construction is limited to small dimensions. One way to describe hyperbolic manifolds is to determine a finite index torsion-free subgroup of a reflection group with few generators.

We present a method established by Felikson and Tumarkin, making use of results of Barot and Marsh on the presentations of finite Coxeter groups, and this in the framework of quivers. Combining classification results provided by Prokhorov and by Henrich for ADE Coxeter groups, they derived a list of eight hyperbolic  $n$ -manifolds, with  $n \leq 7$ .

We present these works that motivate our ongoing research to extend the methods to other Weyl groups and to construct new manifolds.