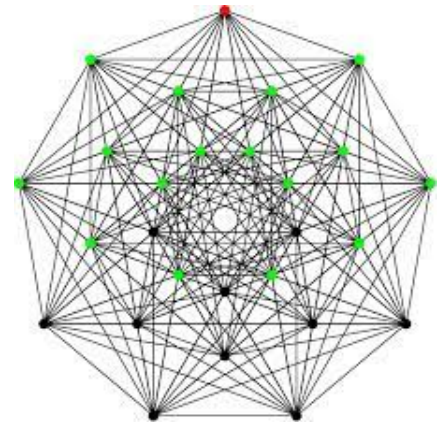


**Oberseminar Geometrie**  
Department of Mathematics  
University of Fribourg  
**Physics 2.52**  
Wednesday, 30 March 2022, 10:20



LEONARDO FERRARI (UNINE)

### **Manifold covers of right-angled polytopes: an introduction and developments**

Manifold covers of right-angled polytopes were first introduced by Davis and Januszkiewicz in 1991 as a simple, combinatorial method to build manifolds by gluing copies of a right-angled polytope along its facets. Since then a number of techniques have been added to their initial work, allowing for a better understanding of the geometry and topology of such manifolds, and many important, recent examples of 4- and 5-dimensional hyperbolic manifolds have arisen from this setting. In this seminar, I will introduce the notion of right-angled polytopes as orbifolds, present the basic construction of manifold covers and give an overview of the additional tools developed in recent years, as well as combinatorial and topological obstructions to the techniques. I will conclude the seminar with applications and open problems of interest.