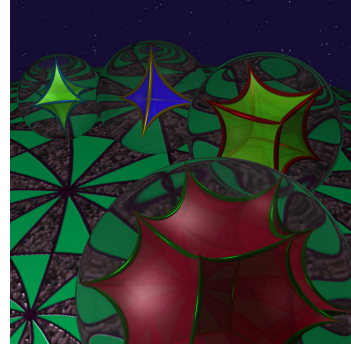


**Oberseminar Geometrie**  
Department of Mathematics  
University of Fribourg  
Seminar room, Math II (Lonza)  
**Wednesday April 17, 2019, 10:20-12:00**



SIMON DREWITZ (Fribourg)

### **Sims' Low Index Subgroup Algorithm**

Selberg's Lemma tells us that every group  $\Gamma \in \text{Isom}(\mathbb{H}^n)$  defining a hyperbolic orbifold  $\Gamma \backslash \mathbb{H}^n$  contains a torsion free subgroup  $G < \Gamma$  of finite index. This gives the existence of a covering manifold  $M = G \backslash \mathbb{H}^n$ . However, the proof is not constructive.

I will explain a well known algorithm by Sims listing all subgroups of a finitely presented group up to a given index. Using work by Carter on torsion elements of Coxeter groups, this algorithm can help finding specifically torsion free subgroups of Coxeter groups. This will enable us to search for covering manifolds of Coxeter orbifolds.