

# Chiral Polytopes

Gabe Cunningham

A chiral polytope is "half-regular": its automorphism groups has two orbits on the flags, such that adjacent flags are in different orbits. The earliest examples were the regular irreflexible torus maps studied by Coxeter and Moser. In this talk, we will define chiral and directly regular polytopes, drawing connections with the theory of regular (abstract) polytopes. Then we will look at a certain two-parameter family of chiral polytopes and the associated family of finitely presented groups, and discuss the problem of determining which parameter values yield finite polytopes and groups.