Simplifications of the intersection condition of chiral form for polytopes

Wei-Juan Zhang
Sun Yat-sen University
Zhangwj63@mail.sysu.edu.cn

Abstract polytopes are partially ordered sets (or posets) which generalize the notion of convex polytopes in a combinatorial sense. Chiral polytopes and directly (or orientably) regular polytopes are two particular classes of abstract polytopes and they share many similarities. To determine if a poset is a chiral or directly regular polytope, it is necessary to test whether or not its rotation group satisfies the so-called intersection condition of chiral form. In this talk, under certain circumstances, we give some simplifications for checking the intersection condition, which leads to various constructions for chiral or directly regular polytopes.