

Dual approach to Coxeter and Artin groups: the constructions via quasi-Coxeter elements

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(Joint work with Georges Neaime, Sarah Rees)

Abstract

I will give an introduction to the dual approach to Coxeter and Artin groups. Let (W, S) be a Coxeter system of finite rank and $c \in W$ a Coxeter element. In this approach W and its related Artin group $A(W)$ are studied using as a generating set not the simple system S but the set of all the 'reflections'

$$T := \cup_{w \in W} S^w$$

in W . Then the interval $[1, c]$ in the Cayley graph $\text{Cay}(W, T)$ and the group presentation $G([1, c])$ determined by that interval are investigated in order to get information on the Artin group $A(W)$. We will also explore the outcome if we replace the Coxeter element by a quasi-Coxeter element, that is the simple system S of W by any generating set of reflections of W of size $|S|$.