

The fattened Davis complex and weighted L^2 -(co)homology of non-right angled Coxeter groups

Wiktor Mogilski

University of Wisconsin–Milwaukee

Abstract. Associated to a Coxeter system (W, S) there is a contractible simplicial complex Σ called the Davis complex. Given a positive real multiparameter q , one can define the weighted L^2 -(co)homology groups of Σ . We propose a program to compute the weighted L^2 -(co)homology of by considering a fattened version of this complex. The program proves successful provided that one can understand the weighted L^2 -(co)homology of non-spherical special subgroups of W . We then restrict our attention to Coxeter groups with $m_{st} = 3; \infty$ and apply this method to perform some computations.