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Structure algebras, Hopf algebroids and oriented cohomology of a group

In this talk, we present our work on proving that the structure algebra of a Bruhat moment graph of a finite real root system is a Hopf algebroid with respect to the Hecke and the Weyl actions. We introduce new techniques and apply them to linear algebraic groups, generalized Schubert calculus, and the combinatorics of Coxeter groups and finite real root systems. Our results have interesting implications for the natural Hopf-algebra structure on the algebraic oriented cohomology of Levine-Morel and for computing the Hopf-algebra structure of "virtual cohomology" of dihedral groups $I_2(p)$, where p is an odd prime.