

Algèbres non commutatives, théorie des représentations et fonctions
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Denominators in Lusztig's asymptotic Hecke algebra

In the early 1980s Lusztig defined a ring J that serves as a limit of an affine Hecke algebra as the parameter v tends to 0, and showed that J can be realized as a subalgebra of a completion of the affine Hecke algebra, with elements of J being infinite linear combinations of elements of the affine Hecke algebra with Laurent series coefficients. Using work of Braverman-Kazhdan and the Plancherel formula for p -adic groups, we prove that the above coefficients are in fact rational functions whose denominators all divide a fixed polynomial that depends only on the affine Weyl group. We conjecture, and prove in the case that the p -adic group is GL_n , that this polynomial is precisely the Poincaré polynomial of the finite Weyl group of G . We will explain a possible application to the representation theory of affine Hecke algebras at root of unity.