

1058-05-199

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Littlewood-Richardson rule for Macdonald polynomials.

Macdonald polynomials are orthogonal polynomials associated to root systems and depend on parameters q and t . The double affine Hecke algebra H is a fundamental tool for studying Macdonald polynomials, which can be constructed by applying intertwining operators on the polynomial representation of H .

Using objects known as alcove walks, we give a combinatorial description for the coefficients in the expansion of a product of two Macdonald polynomials. At $q=0$, the formula specializes to Schwer's formula for Macdonald spherical functions in terms of positively folded walks, and at $q=t$, this specializes to Littelmann's formula for Weyl characters in terms of the path model. (Received February 15, 2010)