

NONSYMMETRIC JACK AND MACDONALD SUPERPOLYNOMIALS

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ABSTRACT

Superpolynomials are formed with N commuting and anti-commuting (skew) variables. By considering the space of skew variables of fixed degree as a module of the symmetric group \mathcal{S}_N the theory of generalized Jack polynomials constructed by S Griffeth can be used to define nonsymmetric Jack superpolynomials. We present the theory, give details about the structure and derive norm formulas. Denote the parameter by κ then the norm is positive-definite for $-\frac{1}{N} < \kappa < \frac{1}{N}$. Analogously there is a structure as Hecke algebra $\mathcal{H}_N(t)$ -module on the skew polynomials and this allows the use of the theory of vector-valued (q, t) -Macdonald polynomials studied by J-G Luque and the author. We outline the theory and present norm formulas and evaluations at special points. The norm is positive-definite for $q > 0$ and $\min(q^{1/N}, q^{-1/N}) < t < \max(q^{1/N}, q^{-1/N})$. As in the scalar case the evaluations use (q, t) -hook products.

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