

## **Super-Macdonald polynomials: Orthogonality properties and physical interpretations**

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Macdonald polynomials are two-parameter generalizations of Schur polynomials, with important connections to representation theory, geometry as well as integrable systems. In particular, they provide eigenfunctions of Macdonald-Ruijsenaars difference operators, which define an integrable relativistic quantum many-body system. This talk is focused on the so-called super-Macdonald polynomials, which generalize the Macdonald polynomials to two kinds of variables and formally provide eigenfunctions of the deformed Macdonald-Ruijsenaars operators first introduced by Chalykh and Sergeev and Veselov. I will present somewhat non-standard orthogonality properties of the super-Macdonald polynomials, a related Hilbert space interpretation and raise the question of possible physical interpretations.

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