

The Flagged Double Schur Function

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Abstract: The double Schur function is a natural generalization of the factorial Schur function introduced by Biedenharn and Louck. It also arises as the symmetric double Schubert polynomial corresponding to a class of permutations called Grassmannian permutations introduced by A. Lascoux. We present a lattice path interpretation of the double Schur function based on a flagged determinantal definition, which readily leads to a tableau interpretation similar to the original tableau definition of the factorial Schur function. The main result of this paper is a combinatorial treatment of the flagged double Schur function in terms of the lattice path interpretations of divided difference operators. Finally, we find lattice path representations of formulas for the symplectic and orthogonal characters for $sp(2n)$ and $so(2n+1)$ based on the tableau representations due to King and El-Shakaway, and Sundaram. Based on the lattice path interpretations, we obtain flagged determinantal formulas for these characters.

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Keywords: Double Schur function, flagged double Schur function, symplectic characters, orthogonal characters.

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