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Symplectic Schur Function Identities

We provide a combinatorial proof of a symplectic character identity relating the sum of a product of symplectic Schur functions to the product $\prod_{i=1}^m \prod_{j=1}^n (x_i + x_i^{-1} + y_j + y_j^{-1})$. This formula is due to Hasegawa and has also been proved combinatorially by Terada. The identity itself generalizes a well-known identity of Littlewood expressing $\prod_{i=1}^m \prod_{j=1}^n (x_i + y_j)$ as a sum of products of Schur functions. We also discuss other symplectic Schur function identities we have proved that have recently been found to have a connection to analytic number theory.

This is joint work with R.C. King.