Combinatorial description for the Hall-Littlewood expansion of unicellular LLT and chromatic quasisymmetric polynomials

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Abstract: In this work, we obtain a Hall-Littlewood expansion of the chromatic quasisymmetric functions by using a Dyck path model and linked rook placements. By using the Carlsson-Mellit relation between the chromatic quasisymmetric functions and the unicellular LLT polynomials, this combinatorial description for the Hall-Littlewood coefficients of the chromatic quasisymmetric functions also gives the coefficients of the unicellular LLT polynomials expanded in terms of the modified transformed Hall-Littlewood polynomials. This is joint work with Seung Jin Lee.