

Quasisymmetric refinements of Schur functions

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Abstract

Schur functions were introduced early in the last century with respect to representation theory, and since then have become important functions in other areas such as combinatorics and algebraic geometry. They have a beautiful combinatorial description in terms of diagrams, which allows many of their properties to be determined.

In this talk we introduce quasisymmetric Schur (QS) functions which partition Schur functions in a natural way. Furthermore, we show how these QS functions also refine many well known combinatorial Schur function properties.

Extending the definition of QS functions, we define skew QS functions, which likewise partition skew Schur functions. We observe how these functions arise in the study of both the noncommutative Schur functions of Rosas-Sagan, and the unrelated ones of Fomin-Greene.

This is joint work with Christine Bessenrodt, Jim Haglund, Kurt Luoto and Sarah Mason.

Furthermore this talk involves no prior knowledge of any of the above terms.