

The Littlewood-Richardson Rule via Reduced Factorizations of the Symmetric Group

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102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

The collection of Schur functions is a standard basis for the ring of symmetric functions. The Littlewood-Richardson rule is a method used to expand the product of two Schur functions in terms of this standard basis. From a representation theoretical point of view, this is equivalent to finding the multiplicity of an irreducible representation in the tensor product of two irreducible representations of the symmetric group.

In this talk, we will show how a recent discovery in the realm of reduced factorizations of the symmetric group has led to a new combinatorial proof of the Littlewood-Richardson rule. Time permitting, we will demonstrate how this discovery relates to the Robinson-Schensted and Edelman-Greene correspondences.

No prior knowledge of symmetric functions and/or reduced factorizations of the symmetric group will be assumed.