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**Representation theory, combinatorics, and a touch of quantum groups**

One candidate for the title 'Fundamental Theorem of Representation Theory' is surely that in a wide variety of situations, the action of a group on a vector space is determined by its trace, or character. In this way, the combinatorics of symmetric functions encode much of the representation theory of the classical groups, and at the same time lead to some surprising new results on representations of quantum affine algebras.