Justin Lambright (Lehigh)

A Combinatorial Interpretation for Computations in the Quantum Polynomial Ring

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A Hopf algebra called the quantum coordinate ring of SL(n,C) is often studied in terms of a related noncommutative ring called the quantum polynomial ring in n^2 variables. Various bases of these rings and their representation-theoretic applications lead to the study of transition matrices whose entries are commutative polynomials having nonnegative integer coefficients. Examples of such polynomials include Brenti's modified R-polynomials. I generalize Brenti's work to give combinatorial interpretations for coefficients in a larger class of transition matrices. As an application, I simplify somewhat the previous formulation of the dual canonical basis of the quantum polynomial ring.
