

MEIXNER POLYNOMIALS OF THE SECOND
KIND AND QUANTUM ALGEBRAS
REPRESENTING $SU(1, 1)$

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Abstract

We show how Viennot's combinatorial theory of orthogonal polynomials may be used to generalize some recent results of Hodges and Sukumar on the matrix entries in powers of operators in a representation of $SU(1, 1)$. Our results link these calculations to finding the moments and inverse polynomial coefficients of certain generalized Laguerre polynomials and Meixner polynomials of the second kind. For the related operators, substitutions into essentially the same Meixner polynomials of the second kind was used by Klimyk to express its eigenvectors. Our combinatorial approach explains and generalizes this "coincidence".

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