Recurrence relations for the connection coefficients of orthogonal polynomials of a discrete variable on the lattice $x(s)=q^{2s}$

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Abstract

We give explicitly recurrence relations satisfied by the connection coefficients between two families of the classical orthogonal polynomials of a discrete variable on a non-uniform lattice $x(s) = q^{2s}$ (i. e., the q-analogues of Charlier, Meixner, Krawtchouk and Hahn polynomials), in terms of the coefficients σ and τ of the Pearson equation satisfied by the weight function ϱ, and the coefficients of the three-term recurrence relation and of two structure relations obeyed by these polynomials.