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A q -analogue of the $9 - j$ symbols

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Abstract

We introduce a q -analogue of Wigner’s $9 - j$ symbols following the notational scheme used by Wilson in identifying the $6 - j$ symbols with Racah polynomials, which eventually led Askey and Wilson to obtain a q -analogue of them, namely, the q -Racah polynomials. More importantly, we prove the orthogonality of our analogue in complete generality, as well as derive a polynomial expression for these new polynomials.