Loureiro, Ana F.; Xu, Kuan
Volterra-type convolution of classical polynomials. (English) Zbl 1428.42011

the authors presented a general framework for calculating the Volterra-type convolution of polynomials from an arbitrary polynomial sequence \( \{ P_k(x) \} \) \( k \geq 0 \) with \( \deg P_k(x) = k \). Based on this framework, series representations for the convolutions of classical orthogonal polynomials, including Jacobi and Laguerre families, are derived.

Reviewer: Ilia V. Boikov (Penza)

MSC:
42A85 Convolution, factorization for one variable harmonic analysis
44A35 Convolution as an integral transform
33C05 Classical hypergeometric functions, \( _2F_1 \)
33C20 Generalized hypergeometric series, \( _pF_q \)
33C45 Orthogonal polynomials and functions of hypergeometric type (Jacobi, Laguerre, Hermite, Askey scheme, etc.)

Keywords:
convolution; Volterra convolution integral; orthogonal polynomials; Jacobi polynomials; Gegenbauer polynomials; Legendre polynomials; Chebyshev polynomials; Laguerre polynomials

Software:
DLMF

Full Text: DOI arXiv

References:

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