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Triangular sequences, combinatorial recurrences and linear difference equations. (English) Zbl 1416.05040

Summary: In this work we introduce the triangular double sequences of arbitrary order given by linear recurrences, that generalize some well-known recurrences that appear in enumerative combinatorics. In particular, we focused on triangular sequences generated by two double sequences and establish their relation with the solution of linear three-term recurrences. We show through some simple examples how these triangular sequences appear as essential components in the expression of some classical orthogonal polynomials and combinatorial numbers.

MSC:
05A19 Combinatorial identities, bijective combinatorics
05A10 Factorials, binomial coefficients, combinatorial functions
11B37 Recurrences
11B65 Binomial coefficients; factorials; $q$-identities
11B73 Bell and Stirling numbers
39A06 Linear difference equations

Keywords:
combinatorial identities; triangular matrices; linear difference equations; three-term recurrences; orthogonal polynomials

Full Text: DOI Link

References:


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