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Applications of Riordan matrix functions to Bernoulli and Euler polynomials. (English)

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Summary: We define Riordan matrix functions associated with Riordan arrays and study their algebraic properties. We also give their applications in the construction of new classes of Bernoulli and Euler polynomials and Bernoulli and Euler numbers, referred to as the duals and conjugate Bernoulli and Euler polynomials and dual and conjugate Bernoulli and Euler numbers, respectively.

MSC:
05A05 Permutations, words, matrices
05A15 Exact enumeration problems, generating functions
05B20 Combinatorial aspects of matrices (incidence, Hadamard, etc.)
15B36 Matrices of integers
15A09 Theory of matrix inversion and generalized inverses
05A30 q-calculus and related topics
05A10 Factorials, binomial coefficients, combinatorial functions
05A19 Combinatorial identities, bijective combinatorics
11B68 Bernoulli and Euler numbers and polynomials

Keywords:
Riordan array; Riordan group; Pascal matrix; Bernoulli polynomials and numbers; Euler polynomials and numbers; conjugate Bernoulli and Euler polynomials

Software:
DLMF

Full Text: DOI

References:
[16] He, T. X.; Zheng, J., Duals of Bernoulli numbers and polynomials and Euler number and polynomials, (2016), submitted for publication

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