Extended biorthogonal matrix polynomials

Ayman Shehata

Abstract:

The pair of biorthogonal matrix polynomials for commutative matrices were first introduced by Varma and Tasdelen in [1]. The main aim of this paper is to extend the properties of the pair of biorthogonal matrix polynomials of Varma and Tasdelen and certain generating matrix functions, finite series, some matrix recurrence relations, several important properties of matrix differential recurrence relations, biorthogonality relations and matrix differential equation for the pair of biorthogonal matrix polynomials \( J_n^{(A,B)}(x;k) \) and \( K_n^{(A,B)}(x;k) \) are discussed. For the matrix polynomials \( J_n^{(A,B)}(x;k) \) and \( K_n^{(A,B)}(x;k) \), various families of bilinear and bilateral generating matrix functions are constructed in the sequel.

Keywords:

Matrix functional calculus, Biorthogonal matrix polynomials, Jacobi matrix polynomials, Generating matrix functions, Differential operator

Published In:

Mathematica Moravica, NULL, NULL