On Rice’s matrix polynomials

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Abstract:

The main aim of this paper is to define and study of a new matrix polynomials, say, the Rice’s matrix polynomials. The convergence, radius of regularity, integral form, generating matrix functions and matrix recurrence relations satisfied by these Rice’s matrix polynomials are derived. Furthermore, we study the operation of differential operators of Rice’s matrix polynomials and their applications are presented. The matrix differential equation are obtained by them is presented. Finally, the study of the composition of Rice’s matrix polynomials is investigated.

Keywords:

Hypergeometric matrix function; Rice’s matrix polynomials; Matrix differential equations; Integral representation; Recurrence relations; Differential operator.

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