Certain generating matrix functions of Legendre matrix polynomials using Lie algebraic method

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Abstract:

The main aim of this present paper is to investigate a new of interesting generating matrix relation for Legendre matrix polynomials with the help of a Lie group-theoretic method. Certain properties are well known but some of them are believed to be novel families of matrix differential recurrence relations and generating matrix functions for these matrix polynomials. Special cases of new results are also given here as applications.

Keywords:

Legendre matrix polynomials, Legendre differential matrix equation, generating matrix functions, Lie algebra.

Published In: