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# Connections between Legendre with Hermite and Laguerre matrix polynomials

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## Abstract:

The aim of this paper is to develop a connection between Legendre and Hermite matrix polynomials recently introduced in [8, 25] is derived. We also obtain various new generalized forms of the Legendre matrix polynomials by using the integral representation method. An expansion of Legendre matrix polynomials in a series of Laguerre matrix polynomials is established.

## Keywords:

Hermite, Laguerre and Legendre matrix polynomials; Integral representation; Finite summation.

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