Some relations on Humbert matrix polynomials

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Abstract:

The Humbert matrix polynomials were first studied by Khammash and Shehata (2012). Our goal is to derive some of their basic relations involving the Humbert matrix polynomials and then study several generating matrix functions, hypergeometric matrix representations, matrix differential equation and expansions in series of some relatively more familiar matrix polynomials of Legendre, Gegenbauer, Hermite, Laguerre and modified Laguerre. Finally, some definitions of generalized Humbert matrix polynomials also of two, three and several index are derived.

Keywords:

Hypergeometric matrix function, Humbert matrix polynomials, Matrix functional calculus, Generating matrix function, Matrix differential equation.

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