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ON GENERALIZED HERMITE MATRIX POLYNOMIALS*

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Abstract. In this paper a new generalization of the Hermite matrix polynomials is given. An explicit representation and an expansion of the matrix exponential in a series of these matrix polynomials is obtained. Some recurrence relations, in particular the three terms recurrence relation, are given for these matrix polynomials. It is proved that the generalized Hermite matrix polynomials satisfy a matrix differential equation.

Key words. Generalized Hermite matrix polynomials, Three terms recurrence relation, Hermite matrix differential equation.

AMS subject classifications. 33C25, 15A60.

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