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ON A CONJECTURE FOR THE IDENTITIES
IN MATRIX ALGEBRAS WITH INVOLUTION ¹

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In a previous paper the author made a conjecture on the minimal degree $4n$ of the polynomials, which are identities for the matrix algebra of order $2n$ with symplectic involution considered as polynomials both in symmetric and skew-symmetric due to the involution variables.

In the present paper we establish that the conjecture is not true at least for the case of the matrix algebra of fourth order by giving an example of such an identity of degree seven, which is a Bergman type identity.

For the matrix algebra of sixth order with symplectic involution we describe the class of all Bergman type identities both in symmetric and skew-symmetric variables of minimal degree (which appeared to be 14). For arbitrary polynomials being identities of the considered type the question of their minimal degree is still open.

Keywords: Bergman type polynomials, symplectic involution, *-identities in symmetric or skew-symmetric variables

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