



SOME PROPERTIES OF THE EXCHANGE OPERATOR WITH RESPECT TO STRUCTURED MATRICES DEFINED BY INDEFINITE SCALAR PRODUCT SPACES*

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Abstract. The properties of the exchange operator on some types of matrices are explored in this paper. In particular, the properties of $exc(A, p, q)$, where A is a given structured matrix of size $(p + q) \times (p + q)$ and $exc : M \times \mathbb{N} \times \mathbb{N} \rightarrow M$ is the exchange operator are studied. This paper is a generalization of one of the results in [N.J. Higham. *J*-orthogonal matrices: Properties and generation. *SIAM Review*, 45:504–519, 2003.].

Key words. Scalar product spaces, Structured matrices, Exchange operator.

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