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STRUCTURED JORDAN CANONICAL FORMS FOR STRUCTURED MATRICES THAT ARE HERMITIAN, SKEW HERMITIAN OR UNITARY WITH RESPECT TO INDEFINITE INNER PRODUCTS*

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Abstract. For inner products defined by a symmetric indefinite matrix $\Sigma_{p,q}$, canonical forms for real or complex $\Sigma_{p,q}$-Hermitian matrices, $\Sigma_{p,q}$-skew Hermitian matrices and $\Sigma_{p,q}$-unitary matrices are studied under equivalence transformations which keep the class invariant.

Key words. structured eigenvalue problems, Lie group, Lie algebra, Jordan algebra

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