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J-SPECTRAL FACTORIZATION FOR RATIONAL MATRIX FUNCTIONS WITH ALTERNATIVE REALIZATION*

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Abstract. In this paper, recent results by Petersen and Ran on the J-spectral factorization problem to rational matrix functions with constant signature that are not necessarily analytic at infinity are extended. In particular, a full parametrization of all $\widetilde{J}$-spectral factors that have the same pole pair as a given square J-spectral factor is given. In this case a special realization involving a quintet of matrices is used.

Key words. J-spectral factorization, Algebraic Riccati equations, Spectral decomposition of pencils.

AMS subject classifications. 47A68, 47A56, 47A62, 15A24.

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