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ON THE PERIODIC QUOTIENT SINGULAR VALUE DECOMPOSITION *

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Abstract. The periodic Schur decomposition has been generally seen as a tool to compute the eigenvalues of a product of matrices in a numerically sound way. In a recent technical report, it was shown that the periodic Schur decomposition may also be used to accurately compute the singular value decomposition (SVD) of a matrix. This was accomplished by reducing a periodic pencil that is associated with the standard normal equations to eigenvalue revealing form. If this technique is extended to the periodic QZ decomposition, then it is possible to compute the quotient singular value decomposition (QSVD) of a matrix pair. This technique may easily be extended further to a sequence of matrix pairs, thus computing the "periodic" QSVD.

Key words. singular value decomposition, periodic Schur decomposition, periodic QR algorithm, periodic QZ algorithm, QSVD, SVD.

AMS subject classifications. 15A18, 65F05, 65F15.

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