

COMPUTATION OF MATRIX FUNCTIONS BY SHANKS' TRANSFORMATIONS

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Shanks' transformation is a well know sequence transformation for accelerating the convergence of scalar sequences. It can be recursively implemented by the scalar ε -algorithm of Wynn who also extended it to sequences of vectors and of square matrices satisfying a linear difference equation with scalar coefficients [4]. Another extension of the transformation to sequences of elements of a general vector space was proposed and studied by Brezinski in 1975, and can be implemented by the simplified topological ε -algorithm [1, 2]. Recently, a more general extension to the matrix case where the matrices can be rectangular and satisfy a difference equation with matrix coefficients, was proposed [3]. In the particular case of square matrices, this transformation can be recursively implemented by the matrix ε -algorithm of Wynn.

Numerical experiments on the computation of matrix functions will be presented.

References

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