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High performance computing of the matrix exponential. (English) Zbl 1329.65092
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Summary: This work presents a new algorithm for matrix exponential computation that significantly simplifies a Taylor scaling and squaring algorithm presented previously by the authors, preserving accuracy. A Matlab version of the new simplified algorithm has been compared with the original algorithm, providing similar results in terms of accuracy, but reducing processing time. It has also been compared with two state-of-the-art implementations based on Padé approximations, one commercial and the other implemented in Matlab, getting better accuracy and processing time results in the majority of cases.

MSC:

65F60 Numerical computation of matrix exponential and similar matrix functions

Cited in **10** Documents

Keywords:

matrix exponential; scaling and squaring; Taylor series

Software:

Matlab; MATLAB expm; mctoolbox; mftoolbox

Full Text: [DOI](#)

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