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A note on the numerical inversion of the Laplace transform.

Wyrzykowski, Roman (ed.) et al., Parallel processing and applied mathematics. 6th international conference, PPAM 2005, Poznań, Poland, September 11–14, 2005. Revised selected papers. Berlin: Springer (ISBN 3-540-34141-2/pbk). Lecture Notes in Computer Science 3911, 551-558 (2006).

Summary: The aim of this paper is to show that the recently developed high performance divide and conquer algorithm for finding trigonometric sums can be applied to improve the performance of Talbot's method for the numerical inversion of the Laplace Transform on modern computer architectures including shared memory parallel computers. We also show how to vectorize the first stage of Talbot's method, namely computing all coefficients of the trigonometric sums used by the method. Numerical tests show that the improved method gives the same accuracy as the standard algorithm and it allows to utilize parallel processors.

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