Best Accuracy of Matrix Multiplication by Error-Free Transformation with Level 3 BLAS

by

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This talk is concerned with accurate matrix multiplication. Floating-point arithmetic is fast performed by recent architectures. However, significand of floating-point numbers is finite. When rounding errors accumulate, computed results may be inaccurate. In this talk, we introduce a method which outputs the result of matrix multiplication with best accuracy, namely, the results are the nearest floating-point numbers from the real results. Since the dominant computations of the proposed method are matrix products, our method receives much benefit from BLAS in terms of performance and parallelization.