

Mixed Precision Algorithms in Numerical Linear Algebra

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Abstract

The increasing support of lower precision arithmetics in hardware provides new opportunities for high performance scientific computing. However, even though low precision arithmetics can provide significant speed, communication, and energy benefits, their use in scientific computing poses the challenge of preserving the accuracy and stability of the computation. To address this issue, a variety of mixed precision algorithms that combine low and high precisions have emerged. In this talk I will give an overview of mixed precision algorithms in numerical linear algebra, with a focus on recent advances to accelerate the solution of linear systems.