

MIXED PRECISION ARITHMETIC FOR LARGE SCALE INVERSE PROBLEMS

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In recent years a substantial amount of work has been done on developing mixed-precision algorithms for linear systems, methods that can exploit capabilities of modern GPU architectures. However, very little work has been done for ill-conditioned problems that arise from large-scale inverse problems. Special considerations, which normally do not arise when solving well-conditioned problems, such as incorporating regularization into the developed methods, need to be considered. In this talk we consider iterative refinement methods for least squares problems, and show the connection to iterated Tikhonov regularization and the preconditioned Landweber method.