
A randomized Krylov-Schur eigensolver, featuring mixed-precision and deflation

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Abstract

In this talk we introduce a novel algorithm to solve large-scale eigenvalue problem for a few set of eigenpairs. The method called randomized Krylov-Schur (rKS) has a simple implementation and benefits from fast and efficient operations in low-dimensional space, such as mixed-precision sketch-orthogonalization processes and stable reordering of a Schur factorization. It also entails a practical deflation technique for converged eigenpairs, enabling the computation of the eigenspace associated to a given part of the spectrum.

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