

1023-65-1603 **Dywayne A Nicely*** (dywayne_nicely@baylor.edu), 4502 Lake Shore Dr. #1209, Waco, TX
76710. *Restarted Nonsymmetric Lanczos and Two-Sided Arnoldi*. Preliminary report.

A restarted version of the nonsymmetric Lanczos algorithm is given for computing eigenvalues and both the right and left eigenvectors even when storage is limited. Approximate eigenvectors are retained at the restart as with implicitly restarted Arnoldi, however approximate left eigenvectors are also saved and used for the next cycle. A three-term recurrence is used, but some reorthogonalization is needed. This approach can also be used to solve large nonsymmetric systems of linear equations. The inclusion of eigenvectors in the subspaces causes deflation of small eigenvalues that improves the convergence compared to other restarted approaches.

We also investigate a restarted two-sided Arnoldi. We compare expense and stability of this approach with restarted nonsymmetric Lanczos. (Received September 26, 2006)