## A NEW FAMILY OF ITERATIVE METHODS FOR SOLVING NONSYMMETRIC SYSTEMS OF LINEAR EQUATIONS

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## Abstract

In the talk we present a new family of iterative methods for solving nonsymmetric systems of linear equations. Our technique uses a limited amount of memory: only a modest (fixed) number of vectors is needed to carry out the iterative process.

We will present the theoretical framework of the new technique, and illustrate the efficiency of the methods with numerical experiments using both academic and realistic test problems. The realistic examples include a 2D convection-diffusion problem from oceanography and a 3D Helmholtz problem from acoustics.

Comparison with Bi-CGSTAB [1], CGS [2] and other state-of-the-art techniques shows that for our test cases our new technique outperforms the other methods, both with respect to the number of matrix-vector products and with respect to the overall number of operations.

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## References

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