

## A BLOCK VERSION OF BICGSTAB FOR LINEAR SYSTEMS WITH MULTIPLE RIGHT-HAND SIDES\*

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**Abstract.** We present a new block method for solving large nonsymmetric linear systems of equations with multiple right-hand sides. We first give the matrix polynomial interpretation of the classical block biconjugate gradient (BI-BCG) algorithm using formal matrix-valued orthogonal polynomials. This allows us to derive a block version of BiCGSTAB. Numerical examples and comparisons with other block methods are given to illustrate the effectiveness of the proposed method.

**Key words.** block Krylov subspace, block methods, Lanczos method, multiple right-hand sides, nonsymmetric linear systems.

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