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A spectrally preconditioned and initially deflated variant of the restarted block GMRES method for solving multiple right-hand sides linear systems

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## Highlights

- We propose a robust variant of the block GMRES method that remedies some typical convergence problems of block Krylov algorithms for the simultaneous solution of multiple right-hand side linear systems.
- We introduce a new formulation of the block GMRES method that combines initial deflation with eigenspace recycling to improve convergence.
- We conduct a performance analysis of the new block Krylov subspace method for solving multiple right-hand sides linear systems in quantum chromodynamics and in electromagnetic scattering applications.

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