

# An enhancement of the convergence of IDR method

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## Abstract

IDR is a short-recurrence method for large non-symmetric systems of linear equations introduced by Sonneveld [2]. This method generates residuals that are forced to be in a sequence of nested subspaces. For this reason, it is necessary to calculate some vectors of all this subspaces to obtain the next residual. In this talk, we study the convergence of this method and propose an enhancement of its convergence and a slight improvement of its stability using orthogonal projectors constructed using all vectors already computed. Numerical experiments are provided to illustrate the performance of the derived algorithm compared with the known GMRES method [1].

**Keywords:** Linear equations, iterative methods, IDR(s) method, Krylov subspace.

## References

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