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Symmetric Multigrid Theory for Deflation Methods

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We present a new estimate for the speed of convergence of deflation methods, based on the idea of Nicolaides, for the iterative solution of linear systems of equations. This is done by using results from classical algebraic multigrid theory. As a further result we obtain that many prolongation operators from multigrid methods can be used to span the deflation subspace, which is needed for deflation methods.