Distinct preconditioned HSS iteration method for non-Hermitian positive definite linear systems

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We introduce and analyze a distinct PHSS (DPHSS) method for solving the large sparse non-Hermitian positive definite system of linear equations, in which two linear subsystems with different preconditioners are solved at each iteration. The convergence properties of the DPHSS method are studied and the optimal parameter for an upper bound of the the contraction factor of the DPHSS method is derived. Numerical experiments are performed with different examples.