

ON SOME PERTURBATION BOUNDS FOR A MATRIX EQUATION FROM INTERPOLATION PROBLEMS [‡]

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Abstract

Some existing perturbation bounds for a unique positive definite solution of a nonlinear matrix equation connected to the interpolation theory are analyzed and compared. We examine the behavior of the perturbation bounds, considered in five sources, through experiments with five numerical examples.

MSC: 65F10; 15A24

keywords: nonlinear matrix equation, perturbation bounds.

1 Introduction

Throughout this paper, $\mathcal{C}^{p \times q}$ denotes the set of $p \times q$ complex matrices, and \mathcal{H}^n the set of $n \times n$ Hermitian matrices. A^* stands conjugate transpose of a matrix A , $A > 0$ ($A \geq 0$) means that A is a Hermitian positive definite (semidefinite) matrix. If $A - B > 0$ (or $A - B \geq 0$) we write $A > B$ (or $A \geq B$). I (or I_n) is the identity matrix of order n . The symbols $\|\cdot\|$, $\|\cdot\|_F$

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