

NEW ESTIMATES FOR THE SOLUTION OF THE LYAPUNOV MATRIX DIFFERENTIAL EQUATION*

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Abstract. In this paper, by using majorization inequalities, upper bounds on summations of eigenvalues (including the trace) of the solution for the Lyapunov matrix differential equation are obtained. In the limiting cases, the results reduce to bounds of the algebraic Lyapunov matrix equation. The effectiveness of the results are illustrated by numerical examples.

Key words. Lyapunov matrix differential equation, Eigenvalue bounds, Majorization inequality.

AMS subject classifications. 93D05, 15A24.

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