Electronic Transactions on Numerical Analysis.
Volume 28, pp. 78-94, 2007.

ISSN 1068-9613.

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MINIMIZATION OF THE SPECTRAL NORM OF THE SOR OPERATOR IN A MIXED CASE*

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Dedicated to Gene Golub on the occasion of his 75th birthday

Abstract. In this work we solve the problem of the minimization of the spectral norm of the SOR operator associated with a block two-cyclic consistently ordered matrix $A \in \mathbb{C}^{n,n}$, assuming that the corresponding Jacobi matrix has eigenvalues $\mu \in [-\beta, \beta] \cup [-\imath\alpha, \imath\alpha]$, with $\beta \in [0, 1)$, $\alpha \in [0, +\infty)$ and $\imath = \sqrt{-1}$. Previous results obtained by other researchers are extended.

Key words. Jacobi and SOR iteration matrices, block two-cyclic consistently ordered matrix, spectral matrix norm

AMS subject classifications. 65F10

*Received December 1, 2006. Accepted for publication June 25, 2007. Recommended by L. Reichel. Part of the work of the first author was funded by the Program Pythagoras of the Greek Ministry of Education.

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