Electronic Transactions on Numerical Analysis. Volume 30, pp. 398-405, 2008. Copyright © 2008, Kent State University. ISSN 1068-9613.

APPROXIMATION OF THE MINIMAL GERŠGORIN SET OF A SQUARE COMPLEX MATRIX*

RICHARD S. VARGA[†], LJILJANA CVETKOVIĆ[‡], AND VLADIMIR KOSTIĆ[‡]

Abstract. In this paper, we address the problem of finding a numerical approximation to the minimal Geršgorin set, $\Gamma^{\mathcal{R}}(A)$, of an irreducible matrix A in $\mathbb{C}^{n,n}$. In particular, boundary points of $\Gamma^{\mathcal{R}}(A)$ are related to a well-known result of Olga Taussky.

Key words. eigenvalue localization, Geršgorin theorem, minimal Geršgorin set.

AMS subject classifications. 15A18, 65F15

^{*}Received November 21, 2007. Accepted for publication October 27, 2008. Published online on December 17, 2008. Recommended by R. Nabben.

[†]Department of Mathematical Sciences, Kent State University, Kent, Ohio (varga@math.kent.edu).

[‡]Department of Mathematics and Informatics, Faculty of Science, University of Novi Sad, Serbia ({lila,vkostic}@im.ns.ac.yu).

³⁹⁸