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MINIMAL GERSCHGORIN SETS FOR PARTITIONED MATRICES II. THE SPECTRAL CONJECTURE*

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Dedicated to Olga Taussky and John Todd, on the occasion of their important birthdays in 1996, for their inspiring work in matrix theory and numerical analysis.

Abstract. In an earlier paper from 1970, entitled "Minimal Gerschgorin sets for partitioned matrices," a Spectral Conjecture, related to norms and spectral radii of special partitioned matrices, was stated, this conjecture being at the heart of the sharpness of the boundaries of the associated minimal Gerschgorin sets under partitioning. In this paper, this Spectral Conjecture is affirmatively settled, and is applied to the sharpness of the minimal Gerschgorin set in the special case when the block-diagonal entries are null matrices. The paper following this article then makes use of the proof of the Spectral Conjecture to obtain the general sharpness of the boundaries of the associated minimal Gerschgorin sets for partitioned matrices.

Key words. minimal Gerschgorin sets, partitioned matrices, monotonicity.

AMS subject classification. 15A18.

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