

A PARAMETERIZED LOWER BOUND FOR THE SMALLEST SINGULAR VALUE*

WEI ZHANG[†], ZHENG-ZHI HAN[†], AND SHU-QIAN SHEN[‡]

Abstract. This paper presents a parameterized lower bound for the smallest singular value of a matrix based on a new Geršgorin-type inclusion region that has been established recently by these authors. The comparison of the new lower bound with known ones is supplemented with a numerical example.

Key words. Eigenvalue, Inclusion region, Smallest singular value, Lower bound.

AMS subject classifications. 15A12, 65F15.

*Received by the editors August 14, 2008. Accepted for publication September 26, 2008. Handling Editor: Roger A. Horn.

[†]School of Electronic, Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai, 200240, China (wizzhang@gmail.com).

[‡]School of Applied Mathematics, University of Electronic Science and Technology of China, Chengdu, 610054, China.