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PSEUDOSPECTRAL MAPPING THEOREM II*

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Abstract. The pseudospectrum has become an important quantity for analyzing stability of non-normal systems. This paper is a continuation of an earlier paper of this author where a mapping theorem for pseudospectra was given, generalizing the spectral mapping theorem for eigenvalues. The main contribution of this paper consists of asymptotic expansions of quantities which determine the sizes of components of pseudospectral sets. As an application of this theory, we solve the eigenvalue perturbation problem for an analytic function of a matrix. Some numerical examples illustrate the theory.

Key words. Eigenvalues, pseudospectra, spectral mapping theorem, condition number, eigenvalue perturbation of function of matrices

AMS subject classifications. 15A18, 15A60, 65F15

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