Electronic Journal of Linear Algebra ISSN 1081-3810
A publication of the International Linear Algebra Society
Volume 20, pp. 333-350, July 2010

ELA
http://math.technion.ac.il/iic/ela

SPECTRUM LOCALIZATION OF REGULAR MATRIX POLYNOMIALS AND FUNCTIONS*

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Abstract. This paper is devoted to the spectrum localization problem for regular matrix polynomials and functions. Sufficient conditions are proposed for spectrum placement in a wide class of regions bounded by analytical curves. These conditions generalize the known linear matrix inequalities (LMI) approaches to stability analysis and pole placement of polynomial matrices. In addition, a method of robust spectrum placement is developed in the form of the LMI systems for a parametric set of matrix polynomials.

Key words. Matrix polynomial, Eigenvalue, Spectrum localization, Linear matrix inequality, Robust stability.

AMS subject classifications. 5A18, 15A22, 26C10.

*Received by the editors January 4, 2010. Accepted for publication May 28, 2010. Handling Editor: Harm Bart.

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