The sign characteristic of Hermitian matrix functions

V. Mehrmann\textsuperscript{1}, V. Noferini\textsuperscript{2}, F. Tisseur\textsuperscript{3}, and H. Xu\textsuperscript{4}

\textsuperscript{1}TU Berlin, mehmnn.math.tu-berlin.de
\textsuperscript{2}University of Manchester, vanni.noferini@manchester.ac.uk
\textsuperscript{3}University of Manchester, ftisseur@manchester.ac.uk
\textsuperscript{4}University of Kansas, xu@math.ku.edu

In the landmark paper \cite{GohbergLancasterRodman1980}, I. Gohberg, P. Lancaster and L. Rodman introduced and developed the theory of sign characteristic of Hermitian matrix polynomials with nonsingular leading coefficients. In this talk, we extend the theory to any Hermitian matrix polynomial. We show that a signature constraint theorem still holds. We also analyze in detail the consequences on the perturbation theory of regular selfadjoint matrix functions, and we give some examples of the applications of the new results. This talk is based on joint work with V. Mehrmann, F. Tisseur, and H. Xu.

References