

CONDITION NUMBERS OF THE KRYLOV BASES AND SPACES ASSOCIATED WITH THE TRUNCATED QZ ITERATION*

ALEXANDER MALYSHEV[†] AND MILOUD SADKANE[‡]

Abstract. We propose exact and computable formulas for computing condition numbers of the Krylov bases and spaces associated with the Hessenberg-Triangular reduction of a regular linear matrix pencil.

Key words. condition number, Krylov spaces, QZ algorithm, generalized Arnoldi algorithm

AMS subject classifications. 65F35, 15A21

*Received January 3, 2004. Accepted for publication November 15, 2005. Recommended by D. Sorensen.

[†]University of Bergen, Department of Mathematics, Johannes Brunsgate 12, N-5008 Bergen, Norway (malyshev@mi.uib.no).

[‡]Université de Brest, Département de Mathématiques, 6 avenue Victor Le Gorgeu, CS 93837, F-29238 Brest Cedex 3, France (sadjane@univ-brest.fr).