Stability Analysis of Implicit Difference Equations under Restricted Perturbations

V. Mehrmann[1] **and D. D. Thuan**[2]

Abstract: The stability analysis for linear implicit m-th order difference equations is discussed. We allow the leading coefficient coefficient to be singular, i.e., we include the situation that the system does not generate an explicit recursion. A spectral condition for the characterization of asymptotic stability is presented and computable formulas are derived for the real and complex stability radii in the case that the coefficient matrices are subjected to structured perturbations.

[1] Institut für Mathematik, MA 4-5, TU Berlin
Strasse des 17. Juni 136, D-10623 Berlin, Germany
mehrmann@math.tu-berlin.de

[2] School of Applied Mathematics and Informatics, Hanoi University of Science and Technology
1 Dai Co Viet Str., Hanoi, Vietnam
ducthuank7@gmail.com