

CONDITION NUMBER ESTIMATION IN THE EUCLIDEAN NORM

Miroslav Tůma

*Institute of Computer Science, Academy of Sciences of the Czech Republic,
Pod Vodárenskou věží 2, 182 07 Praha 8 – Libeň, Czech Republic*

e-mail: tuma@cs.cas.cz

Joint work with Jurjen Duintjer Tebbens

Abstract

This talk presents new theoretical and practical results related to matrix condition estimation in the Euclidean norm. In particular, a practical, incremental strategy stemming out from the work of Bischof, and Duff and Vömel is proposed. Numerical experiments show clear superiority of the proposed strategy for coupled decompositions which produce both direct and inverse LU or Cholesky factors. In particular, we believe that reliable condition number estimators may be a useful component in development of preconditioners based on incomplete decompositions.