DASHNIC-ZUSMANOVICH CLASS OF MATRICES AND ITS APPLICATIONS

Maja Kovačević

Faculty of Technical Sciences, University of Novi Sad, 21000 Novi Sad, Serbia, e-mail: maja_ftn@yahoo.com

Vladimir Kostić, Ljiljana Cvetković

Faculty of Science, University of Novi Sad, 21000 Novi Sad, Serbia, e-mail: vkostic@im.ns.ac.yu

Keywords: H-matrices, strictly diagonally dominant matrices, diagonal scaling, Dashnic-Zusmanovich class of matrices

Abstract

Dashnic-Zusmanovich class of matrices has been introduced in [1] as a generalization of the well-known strictly diagonally dominant class. In the same paper it has been shown that this class can be characterized by the special form of its "scaling" into an SDD matrix. Due to this fact, we can improve some known results about, for example, determinant estimation or Perron root estimation in the case of SDD matrices. Moreover, we can develop corresponding estimations for a larger class of matrices. Some simple numerical examples will show how significant this improvement could be.

Acknowledgement: This research is partly supported by Ministry of Science and Environmental Protection, Serbia, grant 144025.

References

 L.S. DASHNIC AND M.S. ZUSMANOVICH, O nekotoryah kriteryah regulyarnosti matric i lokalizacii ih spectra, Zh. Vychisl. Matem. i Matem. Fiz., 5, (1970), pp. 1092–1097.