Electronic Journal of Linear Algebra ISSN 1081-3810 A publication of the International Linear Algebra Society Volume 21, pp. 124-141, October 2010



COMPLETING BLOCK HERMITIAN MATRICES WITH MAXIMAL AND MINIMAL RANKS AND INERTIAS*

YONGGE TIAN †

Abstract. For a Hermitian matrix with its main block diagonal given, this paper shows how to choose the off-diagonal blocks such that the resulting matrix has the maximal and minimal possible ranks and inertias, respectively. Some direct consequences and applications are also given.

 ${\bf Key}$ words. Hermitian matrix, partial matrix, rank, inertia, matrix completion, matrix decomposition.

AMS subject classifications. 15A03, 15A23, 15A57.

^{*}Received by the editors on June 15, 2009. Accepted for publication on July 31, 2010. Handling Editors: Roger A. Horn and Fuzhen Zhang.

[†]China Economics and Management Academy, Central University of Finance and Economics, Beijing 100081, China (yongge.tian@gmail.com).