

## FURTHER REFINEMENTS OF THE TAN-XIE INEQUALITY FOR SECTOR MATRICES AND ITS APPLICATIONS

YONGHUI REN

*Abstract.* In this paper, we present some further refinements of the Tan-Xie inequality for sector matrices and its applications due to Nasiri and Furuichi [J. Math. Inequal., 15 (2021), 1425–1434].

*Mathematics subject classification (2020):* Primary 15A60, 47A30, 47A60.

*Keywords and phrases:* Sector matrices, positive linear maps, AM-GM-HM.

### REFERENCES

- [1] R. BHATIA, *Positive Definite Matrices*, Princeton University Press, Princeton, 2007.
- [2] R. BHATIA, *Matrix Analysis*, Springer-Verlag, New York, 1997.
- [3] R. BHATIA, F. KITTANEH, *Notes on matrix arithmetic-geometric mean inequalities*, Linear Algebra Appl., 308 (2000) 203–211.
- [4] S. DRURY, M. LIN, *Singular value inequalities for matrices with numerical ranges in a sector*, Oper. Matrices 8 (2014) 1143–1148.
- [5] R. A. HORN, C. R. JOHNSON, *Matrix Analysis*, Cambridge University Press, Cambridge, 2013.
- [6] M. LIN, *Extension of a result of Hanynsworth and Hartfiel*, Arch. Math., 104 (2015) 93–100.
- [7] L. NASIRI, S. FURUICHI, *On a reverse of the Tan-Xie inequality for sector matrices and its applications*, J. Math. Inequal., 15 (2021), 1425–1434.
- [8] M. RAISSOULI, M. S. MOSLEHIAN, S. FURUICHI, *Relative entropy and Tsallis entropy of two accretive operators*, C. R. Math. Acad. Sci. Paris, Ser. I, 355 (2017) 687–693.
- [9] F. TAN, H. CHEN, *Inequalities for sector matrices and positive linear maps*, Electron J. Linear Algebra 35 (2019) 418–423.
- [10] F. TAN, A. XIE, *An extension of the AM-GM-HM inequality*, Bull. Iranian Math. Soc., 46 (2020) 245–251.
- [11] X. ZHAN, *Matrix theory*, American Mathematical Society, 2013.
- [12] F. ZHANG, *A matrix decomposition and its applications*, Linear Multilinear Algebra 63 (2015) 2033–2042.