

## EXTENSION OF DETERMINANTAL INEQUALITIES OF POSITIVE DEFINITE MATRICES

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*Abstract.* In this short note, we extend some known determinantal inequalities of positive definite matrices to a larger class of matrices, namely, matrices whose numerical range is contained in a sector.

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### REFERENCES

- [1] D. CHOI, *Determinantal inequalities of positive definite matrices*, Math. Inequal. Appl., Preprint.
- [2] S. G. WANG, M. X. WU, Z. Z. JIA, *Matrix Inequalities*, 2nd ed., Science Press, Beijing, 2004 (in Chinese).
- [3] M. LIN, *Determinantal inequalities for block triangular matrices*, Math. Inequal. Appl. **18** (2015) 1079–1086.
- [4] M. LIN, *Extension of a result of Haynsworth and Hartfiel*, Arch. Math. **104** (2015) 93–100.
- [5] S. W. DRURY, *Fischer determinantal inequalities and Higham's Conjecture*, Linear Algebra Appl. **439** (2013) 3129–3133.
- [6] F. ZHANG, *A matrix decomposition and its applications*, Linear Multilinear Algebra **63** (2015), no. 10, 2038–2042.
- [7] E. V. HAYNSWORTH, *Applications of an inequality for the Schur complement*, Proc. Amer. Math. Soc. **24** (1970) 512–516.
- [8] R. BHATIA, *Matrix Analysis*, Grad. Texts in Math., vol. **169**, Springer-Verlag, New York, 1997.
- [9] K. E. GUSTAFSON, D. K. M. RAO, *Numerical Range: The Field of Values of Linear Operators and Matrices*, Springer, New York, 1997.
- [10] R. A. HORN, C. R. JOHNSON, *Topics in Matrix Analysis*, Cambridge University Press, 1997.