INEQUALITIES REGARDING PARTIAL
TRACE AND PARTIAL DETERMINANT

Yongtao Li, Lihua Feng, Zheng Huang and Weijun Liu

Abstract. In this paper, we first present simple proofs of Choi's results [4], then we give a short alternative proof for Fiedler and Markham's inequality [6]. We also obtain additional matrix inequalities related to partial determinants.

REFERENCES

[1] W. BERNDT, S. SRA, *Hlawka-Popoviciu inequalities on positive definite tensors*, Linear Algebra Appl. 486 (2015) 317–327.
[2] R. BHATIA, *Matrix Analysis, GTM 169*, Springer-Verlag, New York, 1997.
[3] R. BHATIA, *Positive Definite Matrices*, Princeton University Press, Princeton, 2007.
[4] D. CHOI, *Inequalities related to trace and determinant of positive semidefinite block matrices*, Linear Algebra Appl. 532 (2017) 1–7.
[5] K. FAN, *Advanced Problems and Solutions: Solutions: 4430*, Amer. Math. Monthly 60 (1953), 50.
[6] M. FIEDLER, T. MARKHAM, *On the theorem of Everitt, Thompson, and de Pillis*, Math. Slovaca 44 (1994) 441–444.
[7] R. A. HORN, C. R. JOHNSON, *Matrix Analysis, 2nd ed.*, Cambridge University Press, Cambridge, 2013.
[8] M. LIN, *A determinantal inequality for positive definite matrices*, Electron. J. Linear Algebra 27 (2014) 821–826.
[9] M. LIN, S. SRA, *A proof of Thompson's determinantal inequality*, Math. Notes 99 (2016) 164–165.
[10] M. LIN, P. ZHANG, *Unifying a result of Thompson, Fiedler and Markham*, Linear Algebra Appl. 533 (2017) 380–385.
[11] D. PETZ, *Quantum Information Theory and Quantum Statistics. Theoretical and Mathematical Physics*, Springer, Berlin, 2008.
[12] R. THOMPSON, *A determinantal inequality for positive definite matrices*, Canad. Math. Bull. 4 (1961) 57–62.
[13] L. TIE, K.-Y. CAI, Y. LIN, *Rearrangement inequalities for Hermitian matrices*, Linear Algebra Appl. 434 (2011) 443–456.
[14] X. ZHAN, *Matrix Theory, GSM 147*, American Mathematical Society Providence, Rhode Island, 2013.
[15] F. ZHANG, *Matrix Theory: Basic Results and Techniques, 2nd ed.*, Springer, New York, 2011.

Mathematical Inequalities & Applications
www.ele-math.com
mia@ele-math.com