Mathematical
Inequalities
& Applications
Volume 18, Number 3 (2015), 1079–1086
doi:10.7153/mia-18-83

DETERMINANTAL INEQUALITIES FOR BLOCK TRIANGULAR MATRICES

MINGHUA LIN

Abstract. Let $T=\begin{bmatrix} X & Y \\ 0 & Z \end{bmatrix}$ be an n-square matrix, where X,Z are r-square and $(n-r)$-square, respectively. Among other determinantal inequalities, it is proved that

$$\det(I_n+T^*T)\geqslant \det(I_r+X^*X)\cdot\det(I_{n-r}+Z^*Z)$$

with equality if and only if $Y=0$.

Mathematics subject classification (2010): 15A45.
Keywords and phrases: Determinantal inequality, block triangular matrices.

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