FURUTA INEQUALITY OF INDEFINITE TYPE

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Abstract. In this article, we study matrix inequalities on an (indefinite) inner product space, including a generalization of Furuta inequality: let $A, B$ be $J$-selfadjoint matrices with non-negative eigenvalues and $I \geq JA \geq JB$. Then for each $r \geq 0$, 

$$(A^{\frac{p}{2}} A^p A^{\frac{q}{2}})^{\frac{1}{q}} \geq J (A^{\frac{p}{2}} B^p A^{\frac{q}{2}})^{\frac{1}{q}}$$

holds for $p \geq 0, q \geq 1$ with $(1+r)q \geq p + r$.


Key words and phrases: matrix inequality, (indefinite) inner product space, Furuta inequality.

REFERENCES