عنوان مقاله:

The Generalized Inequalities via Means and Positive Linear Mappings

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خلاصه مقاله:

In this paper, we establish further improvements of the Young inequality and its reverse. Then, we assert operator versions corresponding them. Moreover, an application including positive linear mappings is given. For example, if $A,B\in {\mathbb B}({\mathscr H})$ are two invertible positive operators such that

$$
\begin{align*}& \Phi ^{٢} \bigg(A \nabla _{\nu} B+ rMm \left(A^{-١}+A^{-١} \sharp_{\mu} B^{-١} -٢ \left(A^{-١} \sharp_{\frac{\mu}{٢}} B^{-١} \right)\right)\\& \qquad +\left(\frac{\nu}{\mu} \right) Mm \bigg(A^{-١}\nabla_{\mu} B^{-١} -A^{-١} \sharp_{\mu} B^{-١}\bigg)\bigg) \\& \quad \leq \left(\frac{K(h)}{ K\left(\sqrt{{h^{'}}^{\mu}},٢ \right)^{r^{'}}} \right) ^{٢} \Phi^{٢} (A \sharp_{\nu} B),\end{align*}
$$

where $r=\min\{\nu,١-\nu\}$, $K(h)=\frac{(١+h)^{٢}}{۴h}$, $h=\frac{M}{m}$, $h^{'}=\frac{M^{'}}{m^{'}}$ and $r^{'}=\min\{٢r,١-٢r\}$. The results of this paper generalize the results of recent years.

کلمات کلیدی:

Operator means, Numerical means, Kantorovich's constant, Positive linear map