

SCHUR-CONVEXITY OF THE WEIGHTED ČEBIŠEV FUNCTIONAL

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Abstract. In this paper the weighted Čebišev functional $T(p; f, g; a, b)$ is regarded as a function of two variables

$$T(p; f, g; x, y) = \frac{\int_x^y p(t)f(t)g(t)dt}{\int_x^y p(t)dt} - \left(\frac{\int_x^y p(t)f(t)dt}{\int_x^y p(t)dt} \right) \left(\frac{\int_x^y p(t)g(t)dt}{\int_x^y p(t)dt} \right), (x, y) \in [a, b] \times [a, b]$$

where f , g and $p > 0$ are Lebesgue integrable functions. The property of Schur-convexity (Schur-concavity) of this function is proved.

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REFERENCES

- [1] V. ČULJAK AND J. PEČARIĆ, *Schur-convexity of Čebišev functional*, Mathematical Inequalities & Applications, accepted for publication.
- [2] N. ELEZOVIĆ AND J. PEČARIĆ, *A Note on Schur-convrx functions*, Rocky Mountain J. of Mathematics **30**, 3 (2000), 853–856.
- [3] A. W. MARSHALL AND I. OLKIN, *Inequalities: Theory of Majorization and Its Applications*, Academic Press Inc, New York, 1979.
- [4] J. E. PEČARIĆ, F. PROSCHAN, AND Y. L. TONG, *Convex functions, partial orderings, and statistical applications*, Academic Press Inc, 1992.
- [5] F. QI, J. SÂNDOR, S. S. DRAGOMIR AND A. SOFO, *Note on the Schur-convexity of the extended mean values*, Taiwanese J. Math., **9** (2005), 411–420.