OPERATOR MONOTONICITY OF A 2–PARAMETER FAMILY OF FUNCTIONS AND $\exp\{f(x)\}$ RELATED TO THE STOLARSKY MEAN

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Abstract. We consider operator monotonicity of a 2-parameter family of functions including the representing function of the Stolarsky mean, which is constructed by integration of the function $[(1-\alpha)+\alpha x^p]^{\frac{1}{p}}$, representing the weighted power mean, of $\alpha \in [0,1]$. We also think about operator monotonicity of $\exp\{f(x)\}$ for a continuous function $f(x)$ defined on $(0,\infty)$.

REFERENCES

[1] F. HANSEN, *Selfadjoint means and operator monotone functions*, Math. Ann. **256** (1981), 29–35.
[2] F. HIAI AND H. KOSAKI, *Means for matrices and comparison of their norms*, Indiana Univ. Math. J. **48** (1999), 899–936.
[3] F. HIAI AND D. PETZ, *Introduction to Matrix Analysis and Applications*, Universitext, Springer, 2014.
[4] F. KUBO AND T. ANDO, *Means of positive linear operators*, Math. Ann. **246** (1979/80), 205–224.
[5] M. NAGISA, S. WADA, *Operator monotonicity of some functions*, Linear Algebra Appl., **486** (2015), 389–408.
[6] Y. NAKAMURA, *Classes of operator monotone functions and Stieltjes functions*, The Gohberg anniversary collection, vol. II (Calgary, AB, 1988), 395–404, Oper. Theory Adv. Appl. **41**, Birkhäuser, Basel, 1989.
[7] Y. UDAGAWA, S. WADA, T. YAMAZAKI AND M. YANAGIDA, *On a family of operator means involving the power difference means*, Linear Algebra Appl. **485** (2015), 124–131.