

ON EXPONENTIAL CONVEXITY FOR POWER SUMS AND RELATED RESULTS

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Abstract. In this paper, we use parameterized class of increasing functions to give exponential convexity of the non-negative difference of certain inequality as a function of parameter in connection with power sums. We define new means of Cauchy type and give its relation to the means defined in [5] and [6]. Also we give related mean value theorems of Cauchy type.

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REFERENCES

- [1] N. I. AKHIEZER, *The classical moment problem and some related questions in analysis*, Oliver and Boyd Ltd. The University Press, Glasgow 1965.
- [2] M. ANWAR, J. JAKŠETIĆ, J. PEČARIĆ AND ATIQ UR REHMAN, *Exponential convexity, positive semi-definite matrices and fundamental inequalities*, J. Math. Inequal. **4**, 2 (2010), 171–189.
- [3] S. N. BERNSTEIN, *Sur les fonctions absolument monotones*, Acta Math. **52** (1929), 1–66.
- [4] J. PEČARIĆ, F. PROSCHAN AND Y. L. TONG, *Convex functions, Partial Orderings and Statistical Applications*, Vol. 187 of *Mathematics in Science and Engineering*, Academic Press, Boston, Mass, USA, 1992.
- [5] J. PEČARIĆ AND ATIQ UR REHMAN, *On Logarithmic convexity for power sums and related results*, J. Inequal. Appl., 2008, Article ID 389410, (2008), 9 pp.
- [6] J. PEČARIĆ AND ATIQ UR REHMAN, *On Logarithmic convexity for power sums and related results II*, J. Inequal. Appl., 2008, Article ID 305623, (2008), 12 pp.
- [7] D. V. WIDDER, *The laplace transform*, Princeton 1941, 1946.