

MIXED SYMMETRIC MEANS RELATED TO THE CLASSICAL JENSEN'S INEQUALITY

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Abstract. In this paper, we define some new mixed symmetric means corresponding to various refinements of classical Jensen's inequality. A new refinement of classical Jensen's inequality is given. We also prove the *n*-exponential convexity for the functionals constructed from the refinement results. In the end some applications are discussed.

Mathematics subject classification (2010): Primary 26D07, 26D15, 26D20, 26D99.

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REFERENCES

- M. ANWAR AND J. PEČARIĆ, New Means of Cauchy type, J. Inequal. Appl. Vol. 2008 (2008), Article ID 163202, 10 pages.
- [2] M. ANWAR AND J. PEČARIĆ, On log-convexity for differences of mixed symmetric means, Mathematical Notes 88, 6 (2010), 776–784.
- [3] S. S. DRAGOMIR AND J. PEČARIĆ, On an inequality of GodunovaLevin and some refinements of Jensen integral inequality, Babes-Bolyai, Univ. Fac. Math. Res. Sem. Prep. No.6, 263–268, 1989.
- [4] E. HEWITT AND K. R. STROMBERG, *Real and abstract analysis*, Graduate Text in Mathematics 25, Springer-Verlag, Berlin-Heidelberg-New York (1965).
- [5] L. HORVÁTH, Inequalities Corresponding to the Classical Jensen's Inequality, J. Math. Inequal. 3, 2 (2009), 189–200.
- [6] L. HORVÁTH, K. A. KHAN AND J. PEČARIĆ, Refinements of Results about Weighted Mixed Symmetric Means and Related Cauchy Means, J. Inequal. Appl. Vol. 2011 (2011), Article ID 350973, 19 pages.
- [7] J. JAKŠETIĆ AND J. PEČARIĆ, Exponential Convexity Method, submitted.
- [8] K. A. KHAN, J. PEČARIĆ AND I. PERIĆ, Differences of weighted mixed symmetric means and related results, J. Inequal. Appl. Vol. 2010 (2010), Article ID 289730, 16 pages.
- [9] D. S. MITRINOVIĆ, J. PEČARIĆ AND A. M. FINK, Classical and New Inequalities in Analysis, Kluwer Acadenic Publishers, 1993.
- [10] J. PEČARIĆ, Extension of interpolation of Jensen's Inequality, Mat. Bilten (Skopje) 15 (1991), 39–40.
- [11] J. PEČARIĆ AND J. PERIĆ, Improvement of the Giaccardi and the Petrović Inequality and Related Stolarsky Type Means, submitted.
- [12] J. PEČARIĆ, F. PROSCHAN AND Y. L. TONG, Convex functions, Partial Orderings and Statistical Applications, Academic Press, New York, 1992.
- [13] I. RASA, On the monotonicity of sequences of Bernstein-Schnab operators, Ann. Numer. Theor. Approx. 17 (1988), 185–187.
- [14] D. V. WIDDER, The Laplace Transform, Princeton Uni. Press, New Jersey, 1941.

