

EXTENDED NORMALIZED JENSEN FUNCTIONAL RELATED TO CONVEXITY, 1–QUASICONVEXITY AND SUPERQUADRACITY

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Abstract. In this paper we extend results related to Normalized Jensen Functional in several directions. We compare a specific Jensen functional with a sum of other functionals for convex functions, and we also extend these results for 1-quasiconvex functions and for Superquadratic functions.

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REFERENCES

- [1] S. ABRAMOVICH, *Jensen, Hölder, Minkowski, Jensen-Steffensen and Slater-Pečarić inequalities derived through γ -quasiconvexity*, Math. Inequal. Appl. **19** (2016), no. 4, 1203–1226.
- [2] S. ABRAMOVICH AND S. S. DRAGOMIR, *Normalized Jensen Functional, Superquadracity and Related Inequalities*, International Series of Numerical Mathematics, Birkhäuser Verlag **157**, (2008), 217–228.
- [3] S. ABRAMOVICH, G. JAMESON AND G. SINNAMON, *Refining Jensen’s Inequality*, Bulletin Mathématique de la Societe des Sciences Mathematiques de Roumanie, (Novel Series) **47** (95), (2004), 3–14.
- [4] J. BARIĆ, M. MATIĆ, J. PEČARIĆ, *On the bounds for the normalized Jensen functional and Jensen-Steffensen inequality*, Math. Inequal. Appl. **12** (2009), no. 2, 413–432.
- [5] S. S. DRAGOMIR, *Bounds of the normalised Jensen functional*, Bull. Austral. Math. Soc. **74** (2006), 471–478.
- [6] F. KITTANEH AND Y. MANASRAH, *Improved Young and Heinz inequalities for matrices*, J. Math. Anal. Appl. **36**, (2010), 262–269.
- [7] C. NICULESCU AND L.-E. PERSSON, *Convex functions and their applications, a contemporary approach*, CMS books in mathematics **23**, Springer, New York, 2006.
- [8] M. SABABHEH, *Improved Jensen’s inequality*, Math. Inequal. Appl. **20** (2017), no. 2, 389–403.
- [9] M. SABABHEH AND D. CHOI, *A complete refinement of Young’s inequality*, J. Math. Anal. Appl. **440**, no. 1, (2016), 379–393.
- [10] M. SABABHEH AND M. SAL. MOSLEHIAN, *Advaned refinements of Young and Heinz inequalities*, J. Number Theory **172** (2017), 178–199.
- [11] J. ZHAO AND J. WU, *Operator inequalities involving improved Young and it’s reserved inequalities*, J. Math. Anal. Appl. **421** (2015), 1779–1789.