JENSEN, HÖLDER, MINKOWSKI, JENSEN–STEFFENSEN AND SLATER–PEČARIĆ INEQUALITIES DERIVED THROUGH N–QUASICONVEXITY

SHOSHANA ABRAMOVICH

Abstract. Jensen, Hölder, Minkowski, Jensen-Steffensen and Slater-Pečarić type inequalities derived by the properties of γ-quasiconvex functions that we deal with here, can be seen as analog to these for superquadratic functions and refinements of these for convex functions.

REFERENCES

[1] S. ABRAMOVICH, M. KLARICIĆ BACULA, M. MATIĆ, AND J. PEČARIĆ, *A Variant of Jensen-Steffensen's Inequality and Quasi Arithmetic Means*, Journal of Mathematical Analysis and Applications, **307** (2005) 370–386.

[2] S. ABRAMOVICH, S. BANIĆ, M. MATIĆ AND J. PEČARIĆ, *Jensen Steffensen's and Related Inequalities, for Superquadratic Functions*, Mathematical Inequalities and Applications, **11**, (2008), pp. 23–41.

[3] S. ABRAMOVICH AND S. S. DRAGOMIR, *Normalized Jensen Functional, Superquadracity and Related Inequalities*, International Series of Numerical Mathematics, Birkhäuser Verlag, **157**, (2008) 217–228.

[4] S. ABRAMOVICH, G. JAMESON AND G. SINNAMON, *Refining Jensen's Inequality*, Bulletin Mathematique de la Societe des Sciences Mathematiques de Roumanie, (Novel Series) **47** (95), (2004), 3–14.

[5] S. ABRAMOVICH, L.-E. PERSSON, *Some new estimates of the "Jensen Gap"*, J. Inequal. Appl. (2016), 2016:39, 9 pp.

[6] S. ABRAMOVICH, L.-E. PERSSON, AND N. SAMKO, *Some new scales of refined Jensen and Hardy type inequalities*, Math. Inequal. Appl., **17**, (2014), 1105–1114.

[7] S. ABRAMOVICH, L.-E. PERSSON, AND N. SAMKO, *On γ-quasiconvexity, superquadracity and two-sided reversed Jensen type inequalities*, Math. Inequal. Appl. **18** (2), (2015), 615–627.

[8] S. S. DRAGOMIR, *Bounds for the normalised Jensen functional*, Bull. Austral. Math. Soc. **74** (2006), 471–478.

[9] G. H. HARDY, J. E. LITTLEWOOD AND G. PÓLYA, *Inequalities*, Cambridge University press, 1964.

[10] E. G. KWON AND J. E. BAE, *On a refined Hölder's inequality*, J. Math. Inequal., **10**, no. 1, (2016), 261–268.

[11] L. LARSSON, L. MALIGRANDA, J. PEČARIĆ AND L.-E. PERSSON, *Multiplicative inequalities of Carlson type and interpolation*, World Scientific 2006.

[12] J. MATKOWSKI, *Aconverse of Hölder inequality theorem*, Math. Inequal. Appl. **12**, no. 1, (2009), 21–32.

[13] C. NICULESCU AND L.-E. PERSSON, *Convex functions and their applications, a contemporary approach*, CMS books in mathematics, **23**, Springer New York, 2006.

[14] L. NIKOLOVA AND S. VAROŠANEC, *Refinement of Hölder's inequality derived from functions $\psi_{p,q,\lambda}$ and $\phi_{p,q,\lambda}$*, Ann. Funct. Anal, **2**, no. 1 (2011), 72–83.

[15] J. Pečarić, F. Proschan, Y. L. Tong, *Convex Functions*, Partial Orderings, and Statistical Applications, Academic Press, New York, 1992.

[16] L.-E. Persson and N. Samko, *What should have happen if Hardy had discovered this?*, J. Inequal. Appl. (2012), 2012:29.

[17] L.-E. Persson, N. Samko and P. Wall, *Quasi-monotone weight functions and their characteristics and applications*, Math. Inequal. Appl. **15** (2012) no. 3, 685–705.

[18] G. Sinnamon, *Refining the Hölder and Minkowski inequalities*, J. Inequal. and Appl. **6** (2001), 633–640.

[19] J.-F. Tian, *Property of Hölder-type inequality and its application*, Math. Inequal. Appl. **16**, no. 3, (2013), 831–841.

Mathematical Inequalities & Applications
www.ele-math.com
mia@ele-math.com