Journal of
Mathematical
Inequalities
Volume 14, Number 2 (2020), 319–327 doi:10.7153/jmi-2020-14-21

JENSEN–TYPE INEQUALITIES AND THEIR APPLICATIONS

DINH THANH DUC AND NGUYEN NGOC HUE

Abstract. In the present paper, we establish some entirely new Jensen-type discrete and integral inequalities. As applications of these results, we strengthen the well-known majorization theorem of Hardy, Littlewood and Pólya, and we also give a generalization of Andersson's inequality.

Mathematics subject classification (2010): 26D15, 26A51.
Keywords and phrases: Jensen's inequality, Jensen-type inequality, refinement, reverse, generalization.

REFERENCES

[1] B. J. ANDERSSON, *An inequality for convex functions*, Nordisk Mat. Tidskr. 6 (1958), 25–26.
[2] M. J. CLOUD AND B. C. DRACHMAN, *Inequalities with Applications to Engineering*, Springer, 1998.
[3] P. W. DAY, *Decreasing rearrangements and doubly stochastic operators*, Trans. Amer. Math. Soc. 178 (1973), 383–392.
[4] S. S. DRAGOMIR, *Integral inequalities for convex functions and applications for divergence measures*, Miskolc Math. Notes 17 (2016), no. 1, 151–169.
[5] S. S. DRAGOMIR, *Some reverses of the Jensen inequality with applications*, Bull. Aust. Math. Soc. 87 (2013), no. 2, 177–194.
[6] A. M. FINK, *Andersson's inequality*, Math. Inequal. Appl. 6 (2003), no. 2, 241–245.
[7] G. H. HARDY, J. E. LITTLEWOOD AND G. PÓLYA, *Inequalities*, Cambridge Univ. Press, Cambridge, 1934.
[8] J. M. HOT AND Y. SEO, *An interpolation of Jensen's inequality and its applications to mean inequalities*, J. Math. Inequal. 12 (2018), no. 2, 303–313.
[9] M. A. KHAN, G. A. KHAN, T. ALI, A. KILICMAN, *On the refinement of Jensen's inequality*, Appl. Math. Comput. 262 (2015), 128–135.
[10] G. G. LORENTZ, *Bernstein polynomials*, Second edition, Chelsea Publishing Co., New York, 1986.
[11] G. LU, *New refinements of Jensen's inequality and entropy upper bounds*, J. Math. Inequal. 12 (2018), no. 2, 403–421.
[12] A. M. MERCER, *A generalization of Andersson's inequality*, J. Inequal. Pure Appl. Math. 6 (2005), no. 2, art. 57.
[13] J. E. PEČARIĆ, *On the Ostrowski generalization of Čebyšev's inequality*, J. Math. Anal. Appl. 102 (1984), no. 2, 479–487.
[14] M. SABABHEH, *Improved Jensen's inequality*, Math. Inequal. Appl. 20 (2017), no. 2, 389–403.

© ELEMENT, Zagreb
Paper JMI-14-21
Journal of Mathematical Inequalities
www.ele-math.com
jmi@ele-math.com