ON WEIGHTED GENERALIZATION OF
THE HERMITE–HADAMARD INEQUALITY

ROZARIJA JAKŠIĆ, LJILJANKA KVESIĆ AND JOSIP PEČARIĆ

Abstract. The results obtained in this paper are a correction of the main results obtained in [14], for which we also give an alternative proof and improvement. We also study some new monotonic conditions under which various generalizations of the Hermite-Hadamard inequality are valid. Furthermore, we give an improvement of the obtained results.

Mathematics subject classification (2010): 26A48, 26A51, 26D99.
Keywords and phrases: Hermite-Hadamard's inequality, generalized Hermite-Hadamard's inequality, convex functions, positive linear functionals.

REFERENCES

[1] P. R. BEESACK, J. E. PEČARIĆ, *Integral inequalities for concave functions with applications to special functions*, Proc. Roy. Soc. Edinburgh Sect. A **118** (1991), No. 1–2, 173–192.

[2] J. L. BRENNER, H. ALZER, *On the Jessen's inequality for convex functions*, J. Math. Anal. Appl. **110** (1985), 536–552.

[3] S. S. DRAGOMIR, J. E. PEČARIĆ, L. E. PERSSON, *Some inequalities of Hadamard type*, Sochow J. of Math. (Taiwan), **21**, (1995), No. 3, 335–341.

[4] S. S. DRAGOMIR, J. E. PEČARIĆ, *A generalization of Hadamard's inequality for isotonic linear functionals*, Rad. Mat., **7** (1991), No. 1, 103–107.

[5] L. FEJÉR, *Über die Fourierreihen*, II, Math. Natur wiss. Anz Ungar. Akad Wiss., **24** (1906), 369–390.

[6] P. M. GILL, C. E. M. PEARCE, J. PEČARIĆ, *Hadamard's inequality for r-convex functions*, J. Math. Anal. Appl., **215** (1997), 461–470.

[7] B. JESSEN, *Bemaerkinger om konvekse Funktioner og Uligheder imellem Middelvaerdier I*, Mat. Tidsskrift, **B** (1931), 17–28.

[8] M. KLARIČIĆ BAKULA, J. PEČARIĆ, J. PERIĆ, *Extensions of the Hermite-Hadamard inequality with applications*, Math. Inequal. Appl., **15**, 4 (2012), 899–921.

[9] M. KLARIČIĆ BAKULA, J. E. PEČARIĆ, J. PERIĆ, *On the converse Jensen inequality*, Applied Mathematics and Computation 218 (2012) 6566–6575.

[10] D. S. MITRINOVIĆ, I. B. LACKOVIĆ, *Hermite and convexity*, Aequationes Math., **28**, 229–232.

[11] D. S. MITRINOVIĆ, J. E. PEČARIĆ, A. M. FINK, *Classical and new inequalities in Analysis, Mathematics and its Applications (East European Series)*, 61, Kluwer Academic Publishers Group, Dordrecht, 1993, ISBN 0-7923-2064-6.

[12] J. E. PEČARIĆ, F. PROSCHAN, Y. L. TONG, *Convex functions, Partial orderings and statistical applications*, Academic Press Inc., San Diego 1992.

[13] J. F. STEFFENSEN, *En Ulighed mellem Middelve edier*, Mat. Tidsskrift, **B** (1920), 49–53.

[14] G. ZABANDAN AND A. KILIÇMAN, *Several integral inequalities and upper bound for the bidimensional Hermite – Hadamard inequality*, Journal of Inequalities and Applications 2013, **2013**:27.

© ℰℒℳ, Zagreb
Paper MIA-18-49

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