

INEQUALITIES FOR CONVEX FUNCTIONS AND DOUBLY STOCHASTIC MATRICES

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Abstract. We generalize some results on convex functions presented in papers L. Bougoffa, *New inequalities about convex functions*, J. Inequal. Pure Appl. Math., **7** (4), (2006) Art. 148, and L.-C. Wang, X.-F. Ma and L.-H. Liu, *A note on some new refinements of Jensen's inequality for convex functions*, J. Inequal. Pure Appl. Math., **10** (2), (2009) Art. 48. To this end, we use majorization of vectors, doubly stochastic matrices and circular matrices.

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REFERENCES

- [1] L. BOUGOFFA, *New inequalities about convex functions*, J. Inequal. Pure Appl. Math. **7**, 4 (2006), Art. 148.
- [2] S. S. DRAGOMIR, *A new refinement of Jensen's inequality in linear spaces*, Math. Comput. Model. **52** (2010), 1497–1505.
- [3] S. S. DRAGOMIR, *A refinement of Jensen's inequality with applications for f -divergence measures*, Taiwan. J. Math. **14**, 1 (2010).
- [4] L. HORVÁTH, *A method to refine the discrete Jensen's inequality for convex and mid-convex functions*, Math. Comput. Modelling **54** (2011), 2451–2459.
- [5] L. HORVÁTH AND J. PEČARIĆ, *A refinement of the discrete Jensen's inequality*, Math. Inequal. Appl. **14**, 4 (2011), 777–791.
- [6] A. W. MARSHALL, I. OLKIN AND B. C. ARNOLD, *Inequalities: Theory of Majorization and Its Applications*, Second Edition, Springer, New York, 2011.
- [7] L.-C. WANG, X.-F. MA AND L.-H. LIU, *A note on some new refinements of Jensen's inequality for convex functions*, J. Inequal. Pure Appl. Math. **10**, 2 (2009), Art. 48.