

CONVERSES OF JENSEN'S OPERATOR INEQUALITY

JADRANKA MIČIĆ, JOSIP PEČARIĆ AND YUKI SEO

Abstract. We give a generalization of converses of Jensen's operator inequality for fields of positive linear mappings $(\phi_t)_{t \in T}$ such that $\int_T \phi_t(\mathbf{1}) d\mu(t) = k\mathbf{1}$ for some positive scalar k . We consider different types of converse inequalities.

Mathematics subject classification (2010): 47A63, 47A64.

Keywords and phrases: Converses of Jensen's operator inequality, convex function, Mond-Pečarić method, power functions, power means.

REFERENCES

- [1] M. D. CHOI, *A Schwarz inequality for positive linear maps on C^* -algebras*, Illinois J. Math., **18** (1974) 565–574.
- [2] CH. DAVIS, *A Schwarz inequality for convex operator functions*, Proc. Amer. Math. Soc., **8** (1957), 42–44.
- [3] R. DRNOVŠEK, T. KOSEM, *Inequalities between $f(\|A\|)$ and $\|f(|A|)\|$* , Math. Inequal. Appl., **8** (2005), 1–6.
- [4] J. I. FUJII, M. NAKAMURA, J. PEČARIĆ AND Y. SEO, *Bounds for the ratio and difference between parallel sum and series via Mond-Pečarić method*, Math. Inequal. Appl., **9** (2006), 749–759.
- [5] F. HANSEN AND G. K. PEDERSEN, *Jensen's operator inequality*, Bull. London Math. Soc., **35** (2003), 553–564.
- [6] T. FURUTA, J. MIČIĆ HOT, J. PEČARIĆ AND Y. SEO, *Mond-Pečarić method in operator inequalities*, Monographs in Inequalities 1, Element, Zagreb, 2005.
- [7] F. HANSEN, J. PEČARIĆ AND I. PERIĆ, *Jensen's operator inequality and it's converses*, Math. Scand., **100** (2007), 61–73.
- [8] J. MIČIĆ AND J. PEČARIĆ, *Order among power means of positive operators, II*, Sci. Math. Japon. Online (2009), 677–693.
- [9] J. MIČIĆ, Y. SEO, S.-E. TAKAHASI AND M. TOMINAGA, *Inequalities of Furuta and Mond-Pečarić*, Math. Inequal. Appl., **2** (1999), 83–111.
- [10] B. MOND AND J. E. PEČARIĆ, *Converses of Jensen's inequality for linear maps of operators*, Analele Universit. din Timișoara, Seria Math.-Inform., **XXXI**, 2 (1993), 223–228.
- [11] B. MOND AND J. PEČARIĆ, *Converses of Jensen's inequality for several operators*, Revue d'Analyse Numer. et de Théorie de l'Approxim., **23** (1994), 179–183.
- [12] B. MOND AND J. E. PEČARIĆ, *Bounds for Jensen's inequality for several operators*, Houston J. Math., **20**, 4 (1994), 645–651.
- [13] W. F. STINESPRING, *Positive functions on C^* -algebras*, Proc. Amer. Math. Soc., **6** (1955), 211–216.