Journal of Mathematical Inequalities
Volume 13, Number 1 (2019), 105–120
doi:10.7153/jmi-2019-13-08

AN INTERPOLATION OF JENSEN'S INEQUALITY AND ITS CONVERSES WITH APPLICATIONS TO QUASI–ARITHMETIC MEAN INEQUALITIES

JADRANKA MIĆIĆ HOT AND YUKI SEO

Abstract. In this paper, we show an interpolation of Davis-Choi-Jensen operator inequality and the converse inequality for Hilbert space operators. As applications, we obtain an interpolation of quasi-arithmetic mean inequalities and the converse inequalities.

Mathematics subject classification (2010): Primary 47A63, secondary 47A64.
Keywords and phrases: Jensen's inequality, converse of Jensen's inequality, positive linear mapping, convex function, quasi-arithmetic mean.

REFERENCES

[1] Y.J. CHO, M. MATIĆ AND J. PEČARIĆ, *Two mappings in connection to Jensen's inequality*, Panamerican Math. J., **12**(2002), 43–50.
[2] S.S. DRAGOMIR, *Hermite-Hadamard's type inequalities for operator convex functions*, Appl. Math. Comput. **218** (2011), 766–772.
[3] S.S. DRAGOMIR, *Hermite-Hadamard's type inequalities for convex functions of selfadjoint operators in Hilbert spaces*, Linear Algebra Appl. **436** (2012), 1503–1515.
[4] T. FUJII, J. MIĆIĆ HOT, J. PEČARIĆ AND Y. SEO, *Recent Developments of Mond-Pečarić Method in Operator Inequalities*, Monographs in Inequalities 4, Element, Zagreb, 2012.
[5] L. LAWSON AND Y. LIM, *Karcher means and Karcher equations of positive definite operators*, Trans. Amer. Math. Soc., Series B, **1**(2014), 1–22.
[6] J. MIĆIĆ AND J. PEČARIĆ, *Some mappings related to Levinson's inequality for Hilbert space operators*, Filomat **31** (2017), 1995–2009.
[7] J. MIĆIĆ, J. PEČARIĆ AND J. PERIĆ, *Refined converses of Jensen's inequality for operators*, J. Inequal. Appl. **2013:353** (2013) 1–20.
[8] J. MIĆIĆ HOT AND Y. SEO, *An interpolation of Jensen's inequality and its applications to mean inequalities*, J. Math. Inequal. **12** (2018), 303–313.

Paper JMI-13-08