

## LEVINSON'S INEQUALITY FOR HILBERT SPACE OPERATORS

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*Abstract.* Levinson's operator inequality is given for unital fields of positive linear mappings and a large class of functions. Order among quasi-arithmetic means is considered under similar conditions.

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### REFERENCES

- [1] I. A. BALOCH, J. PEČARIĆ AND M. PRALJAK, *Generalization of Levinson's inequality*, J. Math. Inequal., accepted for publication.
- [2] P. S. BULLEN, *An inequality of N. Levinson*, Univ. Beograd. Publ. Elektrotehn. Fak. Ser. Mat. Fiz. **412–460** (1973), 109–112.
- [3] T. FUJII, J. MIČIĆ HOT, J. PEČARIĆ AND Y. SEO, *Recent Developments of Mond-Pečarić Method in Operator Inequalities*, Monographs in Inequalities **4**, Element, Zagreb, 2012.
- [4] T. FURUTA, J. MIČIĆ HOT, J. PEČARIĆ AND Y. SEO, *Mond-Pečarić Method in Operator Inequalities*, Monographs in Inequalities **1**, Element, Zagreb, 2005.
- [5] N. LEVINSON, *Generalization of an inequality of Ky Fan*, J. Math. Anal. Appl. **8** (1964), 133–134.
- [6] A. MCD. MERCER, *Short proof of Jensen's and Levinson's inequalities*, Math. Gazette **94** (2010), 492–495.
- [7] J. MIČIĆ, *Refinements of quasi-arithmetic means inequalities for Hilbert space operators*, Banach J. Math. Anal. **9** (2015), 111–126.
- [8] J. MIČIĆ, K. HOT, *Inequalities among quasi-arithmetic means for continuous field of operators*, Filomat, **26:5** (2012), 977–991.
- [9] J. MIČIĆ, Z. PAVIĆ AND J. PEČARIĆ, *Jensen's inequality for operators without operator convexity*, Linear Algebra Appl. **434** (2011), 1228–1237.
- [10] M. S. MOSLEHIAN, J. MIČIĆ AND M. KIAN, *An operator inequality and its consequences*, Linear Algebra Appl. **439** (2013) 3, 584–591.
- [11] T. POPOVICIU, *Sur une inegalite de N. Levinson*, Mathematica (Cluj) **6** (1964), 301–306.
- [12] A. WITKOWSKI, *On Levinson's inequality*, RGMIA Research Report Collection **15** (2012), Article 68.
- [13] A. WITKOWSKI, *On Levinson's inequality*, Ann. Univ. Paed. Cracov. Stud. Math. **12** (2013), 59–67.