

## IMPROVED ARITHMETIC–GEOMETRIC MEAN INEQUALITY AND ITS APPLICATION

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*Abstract.* In this short note, we present a refinement of the well-known arithmetic-geometric mean inequality. As application of our result, we obtain an operator inequality.

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### REFERENCES

- [1] T. ANDO, *Topics on operator inequalities*, Hokkaido Univ. Lecture Note, 1978.
- [2] R. BHATIA, *Interpolating the arithmetic-geometric mean inequality and its operator version*, Linear Algebra Appl. **413** (2006), 355–363.
- [3] R. BHATIA, *Positive Definite Matrices*, Princeton University Press, Princeton, 2007.
- [4] J. I. FUJII, E. KAMEI, *Relative operator entropy in noncommutative information theory*, Math. Japon. **34** (1989), 341–348.
- [5] M. FUJII, J. MIČIĆ, J. PEČARIĆ, Y. SEO, *Recent Developments of Mond-Pečarić Method in Operator Inequalities*, Element, Zagreb, 2012.
- [6] S. FURUICHI, *Refined Young inequalities with Specht's ratio*, J. Egyptian Math. Soc. **20** (2012), 46–49.
- [7] T. FURUTA, *Invitation to Linear Operators*, Taylor & Francis, London and New York, 2001.
- [8] T. FURUTA, J. MIČIĆ, J. PEČARIĆ, Y. SEO, *Mond-Pečarić Method in Operator Inequalities*, Element, Zagreb, 2005.