

UNITARILY INVARIANT NORMS RELATED TO THE NUMERICAL RADIUS ON $B(H)$

R. ALIZADEH AND M. B. ASADI

Abstract. We determine the maximum (minimum) in the class of unitarily invariant norms $\|\cdot\|$ such that $\|T\| \leq w(T)$ ($\|T\| \geq w(T)$) for every bounded operator T in $B(H)$. Here, H is an infinite dimensional Hilbert space and $w(T)$ denotes the numerical radius of T .

Mathematics subject classification (2010): 47A12, 47A30.

Keywords and phrases: unitarily invariant norm, numerical radius, Hilbert space.

REFERENCES

- [1] T. ANDO, *Unitarily invariant norms related to the numerical radius*, Linear Algebra Appl. **417** (2006), 3–7.
- [2] R. BHATIA, *Matrix Analysis*, Graduate texts in mathematics, Springer-Verlag , 1997.
- [3] J. T. CHAN, C. K. LI, C. N. TU, *A class of unitarily invariant norms on $B(H)$* , Proc. Amer. Math. Soc. **129**, 4 (2000), 1065–1076.
- [4] J. FANG, D. HADWIN, E. NORDGREN, J. SHEN, *Tracial gauge norms on finite von Neumann algebras satisfying the weak Dixmier property*, J. Funct. Anal. **255**, 1 (2008), 142–183.
- [5] R. A. HORN, C. R. JOHNSON, *Topics in Matrix Analysis*, Cambridge University Press, Cambridge, 1991 .
- [6] D. GOLDRRI, *Classic Set Theory*, Chapman and Hall, London, 1996.