

CHARACTERIZATION OF UNITARY OPERATORS BY ELEMENTARY OPERATORS AND UNITARILY INVARIANT NORMS

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Abstract. In this work we characterize unitary operators via inequalities of elementary operators with unitarily invariant norms.

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REFERENCES

- [1] E. ANDRUCHOW, G. CORACH, D. STOJANOFF, *Geometric operator inequalities*, Linear Algebra Appl. **258** (1997), 295–310.
- [2] R. BHATIA, F. KITTANEH, *Cartesian decompositions and Schatten norms*, Linear Algebra Appl. **318**, 1–3 (2000), 109–116.
- [3] C. CONDE, *Normal operators and inequalities in norm ideals*, Linear Algebra Appl. **431** (2009), 1774–1777.
- [4] G. CORACH, H. PORTA, L. RECHT, *An operator inequality*, Linear Algebra Appl. **142** (1990), 153–158.
- [5] I. GOHBERG, M. KREIN, *Introduction to the Theory of Linear Nonselfadjoint Operators*, American Mathematical Society, Vol. 18, Providence, R. I., 1969.
- [6] F. KITTANEH, *On some operator inequalities*, Linear Algebra Appl. **208/209** (1994), 19–28.
- [7] B. MAGAJNA, M. PETKOVŠEK, A. TURNŠEK, *An operator inequality and selfadjointness*, Linear Algebra Appl. **377** (2004), 181–194.
- [8] R. NAKAMOTO, *A characterization of normal operators using the Hilbert-Schmidt class*, Proc. Amer. Math. Soc. **79**, 2 (1980), 343–344.
- [9] A. SEDDIK, *Some results related to the Corach-Porta-Recht inequality*, Proc. Amer. Math. Soc. **129** (2001), 3009–3015.
- [10] A. SEDDIK, *On some operator norm inequalities*, Linear Algebra Appl. **389** (2004), 183–187.
- [11] A. SEDDIK, *On the injective norm and characterization of some subclasses of normal operators by inequalities or equalities*, J. Math. Anal. Appl., **351** (2009), 277–284.