

NEW PROOFS ON TWO RECENT INEQUALITIES RELATED TO THE SPECTRAL NORM

JIQIN CHEN, XIAOHUI FU* AND QI SONG

Abstract. Afraz et al. [1] recently obtained some norm inequalities involving a special class of functions for sector matrices. In this short note, we give alternative proofs of Afraz et al.'s two results [1] under the spectral norm.

Mathematics subject classification (2020): 15A42, 47A63, 15A45, 47B65.

Keywords and phrases: Submultiplicative function, sector matrix, spectral norm.

REFERENCES

- [1] D. AFRAZ, R. LASHKARIPOUR, M. BAKHERAD, *Norm inequalities involving a special class of functions for sector matrices*, J. Inequal. Appl. (2020) **2020**: 122.
- [2] D. AFRAZ, R. LASHKARIPOUR, M. BAKHERAD, *Further norm and numerical radius inequalities for sum of Hilbert space operators*, Filomat. **38** (2024) 3235–3242.
- [3] M. BAKHERAD, R. LASHKARIPOUR, M. HAJMOHAMADI, *Extensions of interpolation between the arithmetic-geometric mean inequality for matrices*, J. Inequal. Appl. (2017) **2017**: 209.
- [4] M. BAKHERAD, *Unitarily invariant norm inequalities involving G_1 operators*, Commun. Korean Math. Soc. **33** (2018) 889–899.
- [5] R. BHATIA, *Matrix Analysis*, Springer-Verlag, New York, 1997.
- [6] J.-C. BOURIN, M. UCHIYAMA, *A matrix subadditivity inequality for $f(A+B)$ and $f(A)+f(B)$* , Linear Algebra Appl. **423** (2007) 512–518.
- [7] X. FU, C. HE, *On some Fischer type determinantal inequalities for accretive-dissipative matrices*, J. Inequal. Appl. (2013) **2013**: 316.
- [8] A. GEORGE, KH. D. IKRAMOV, A. B. KUCHEROV, *On the growth factor in Gaussian elimination for generalized Higham matrices*, Numer. Linear Algebra Appl. **9** (2002) 107–114.
- [9] A. GEORGE, KH. D. IKRAMOV, *On the properties of accretive-dissipative matrices*, Math. Notes **77** (2005) 767–776.
- [10] M. D. GUNZBURGER, R. J. PLEMMONS, *Energy conserving norms for the solution of hyperbolic systems of partial differential equations*, Math. Comp. **33** (1979) 1–10.
- [11] R. A. HORN, C. R. JOHNSON, *Matrix Analysis*, 2nd ed, Cambridge University Press, Cambridge, 2013.
- [12] N. J. HIGHAM, *Factorizing complex symmetric matrices with positive real and imaginary parts*, Math. Comp. **67** (1998) 1591–1599.
- [13] KH. D. IKRAMOV, *Determinantal inequalities for accretive-dissipative matrices*, J. Math. Sci. (New York) **121** (2004) 2458–2464.
- [14] M. LIN, *Reversed determinantal inequalities for accretive-dissipative matrices*, Math. Inequal. Appl. **12** (2012) 955–958.
- [15] M. LIN, *Fisher type determinantal inequalities for accretive-dissipative matrices*, Linear Algebra Appl. **438** (2013) 2808–2812.
- [16] M. LIN, *A note on the growth factor in Gaussian elimination for accretive-dissipative matrices*, Calcolo. **51** (2014) 363–366.
- [17] K. SHEBRAWI, M. BAKHERAD, *Generalizations of the Aluthge transform of operators*, Filomat. **32** (2018) 6465–6474.
- [18] M. UCHIYAMA, *Subadditivity of eigenvalue sums*, Proc. Amer. Math. Soc. **134** (2006) 1405–1412.

- [19] F. ZHANG, *A matrix decomposition and its applications*, Linear Multilinear Algebra. **10** (2015) 2033–2042.