

## A NOTE ON “AN EIGENVALUE INEQUALITY FOR POSITIVE SEMIDEFINITE $k \times k$ BLOCK MATRICES”

FENG ZHANG

*Abstract.* Zhang and Xu recently obtained some new matrix norm inequalities in [1]. In this note, we provide alternative proofs and some applications for these results.

*Mathematics subject classification (2020):* 15A42, 06A06.

*Keywords and phrases:* Norm inequality, block matrix.

### REFERENCES

- [1] F. ZHANG, J. XU, *An eigenvalue inequality for positive semidefinite  $k \times k$  block matrices*, Journal of Mathematical Inequalities, 2020 (14), 1383–1388.
- [2] R. BHATIA, *Matrix Analysis*, Springer, New York (1997).
- [3] K. M. R. AUDENAERT, *Interpolating between the arithmetic-geometric mean and Cauchy-Schwarz matrix norm inequalities*, Oper. Matrices, 2015 (9), 475–479.
- [4] M. LIN, H. WOLKOWICZ, *An eigenvalue majorization inequality for positive semidefinite block matrices*, Linear Multilinear A., 2012 (60), 1365–1368.
- [5] L. ZOU, Y. JIANG, *A note on interpolation between the arithmetic-geometric mean and Cauchy-Schwarz matrix norm inequalities*, Journal of Mathematical Inequalities, 2016 (10), 1119–1122.
- [6] X. WU, *Two inequalities of unitarily invariant norms for matrices*, Science Asia, 2019 (45), 395–397.