Journal of Mathematical Inequalities
Volume 12, Number 4 (2018), 933–941
doi:10.7153/jmi-2018-12-70

SOME NEW INEQUALITIES FOR K–FRAMES

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Abstract. In this paper, we establish some inequalities for dual K-frames from the point of view of operator theory. We also present a new inequality for Parseval K-frames associated with a scalar $\lambda \in [0,1]$, which is more general and covers one existing corresponding result recently obtained by F. Arabyani Neyshaburi et al.

Mathematics subject classification (2010): Primary 42C15, Secondary 42C40.
Keywords and phrases: Parseval K-frame, dual K-frame, scalar, operator.

REFERENCES

[1] F. ARABYANI NEYSHABURI, A. AREFIJAMAAL, *Some constructions of K-frames and their duals*, Rocky Mountain J. Math. **47** (2017), 1749–1764.
[2] F. ARABYANI NEYSHABURI, GH. MOHAJERI MINAEI, E. ANJIDANI, *On some equalities and inequalities for K-frames*, `www.arxiv.org`, math.FA/1705.10155v1.
[3] R. BALAN, P. G. CASAZZA, D. EDIDIN, G. KUTYNIOK, *A new identity for Parseval frames*, Proc. Amer. Math. Soc. **135** (2007), 1007–1015.
[4] J. J. BENEDETTO, A. M. POWELL, O. YILMAZ, *Sigma-Delta* $(\Sigma\Delta)$ *quantization and finite frames*, IEEE Trans. Inform. Theory **52** (2006), 1990–2005.
[5] P. G. CASAZZA, *The art of frame theory*, Taiwanese J. Math. **4** (2000), 129–201.
[6] O. CHRISTENSEN, *An Introduction to Frames and Riesz Bases*, Birkhäuser, Boston, 2003.
[7] I. DAUBECHIES, A. GROSSMANN, Y. MEYER, *Painless nonorthogonal expansions*, J. Math. Phys. **27** (1986), 1271–1283.
[8] R. J. DUFFIN, A. C. SCHAEFFER, *A class of nonharmonic Fourier series*, Trans. Amer. Math. Soc. **72** (1952), 341–366.
[9] H. G. FEICHTINGER, T. WERTHER, *Atomic systems for subspaces*, in: L. Zayed (Ed.), Proceedings SampTA 2001, Orlando, FL, 2001, pp. 163–165.
[10] L. GĂVRUŢA, *Frames for operators*, Appl. Comput. Harmon. Anal. **32** (2012), 139–144.
[11] P. GĂVRUŢA, *On some identities and inequalities for frames in Hilbert spaces*, J. Math. Anal. Appl. **321** (2006), 469–478.
[12] X. X. GUO, *Canonical dual K-Bessel sequences and dual K-Bessel generators for unitary systems of Hilbert spaces*, J. Math. Anal. Appl. **444** (2016), 598–609.
[13] J. Z. LI, Y. C. ZHU, *Some equalities and inequalities for g-Bessel sequences in Hilbert spaces*, Appl. Math. Lett. **25** (2012), 1601–1607.
[14] T. STROHMER, R. HEATH, *Grassmannian frames with applications to coding and communication*, Appl. Comput. Harmon. Anal. **14** (2003), 257–275.
[15] W. SUN, *Asymptotic properties of Gabor frame operators as sampling density tends to infinity*, J. Funct. Anal. **258** (2010), 913–932.
[16] Z. Q. XIANG, Y. M. LI, *Frame sequences and dual frames for operators*, Science Asia **42** (2016), 222–230.
[17] X. C. XIAO, Y. C. ZHU, L. GĂVRUŢA, *Some properties of K-frames in Hilbert spaces*, Results Math. **63** (2013), 1243–1255.

Paper JMI-12-70