

QUANTIZATION OF $A_0(K)$ -SPACES

ANINDYA GHATAK AND ANIL KUMAR KARN

Abstract. Let $(V, \{\|\cdot\|_n\}, \{M_n(V)^+\})$ be a C^* -ordered operator space and $Q_n(V)$ be the quasi-state space of $M_n(V)$. We show that every C^* -ordered operator space V is complete isometrically, completely isomorphic to $\{A_0(Q_n(V), M_n(V^*))\}$. Motivated by this result we study matricial convexity property. We introduce a notion of an L^1 -matrix convex set $\{K_n\}$ in a $*$ -locally convex space X . We show that every quantized function space $\{A_0(K_n, M_n(X))\}$ is a C^* -ordered operator space. Further, we generalize the notion of regular embedding of a compact convex set to L^1 -regular embedding of an L^1 -matrix convex set. We show that if a L^1 -matricial convex set is L^1 -regular embed and L^1 -matricial cap, then $A_0(K_n, M_n(V))$ is an abstract operator system.

Mathematics subject classification (2010): 46B40, 46L07, 47L25.

Keywords and phrases: Operator space, operator system, C^* -ordered operator space, matrix convex set, L^1 -Matrix convex set.

REFERENCES

- [1] E. M. ALFSEN, *Compact Convex Sets and Bounded Integrals*, **57**, Springer Verlag, Berlin-Heidelberg-New York, (1971).
- [2] L. ASIMOV, *Well-capped convex cones*, Pacific J. Math., **26**, (1968), 421–431.
- [3] M. D. CHOI, E. G. EFFROS, *Injectivity and Operator Spaces*, J. Func. Anal., **24** (1977), 156–209.
- [4] E. G. EFFROS, Z. J. RUAN, *On the Abstract Characterization of Operator Spaces*, Proc. Amer. Math. Soc., **119**, (1993), 579–584.
- [5] A. GHATAK, A. KARN, *CM-ideals and L^1 -matricial split faces*, Acta Sci. Math. (Szeged) **85** (2019), 659–679.
- [6] G. J. O. JAMESON, *Order Linear Spaces*, Springer-Verlag, Lecture Notes No. **141**, Berlin, (1970).
- [7] A. YA. HELEMSKII, *Quantum Functional Analysis: Non-Coordinate Approach*, University Lecture Series, 56. American Mathematical Society, Providence, RI, (2010).
- [8] R. V. KADISON, *A Representation Theory for Commutative Topological Algebras*, Mem. Amer. Math. Soc. **7**, (1951).
- [9] A. K. KARN, *Order Embedding of Matrix Ordered Spaces*, Bull. Aust. Math. Soc., **84**, (2011) 10–18.
- [10] A. K. KARN, *A p-Theory of Order Normed Spaces*, Positivity, **14**, (2010), 441–458.
- [11] K. F. NG, *The Duality of Partially Ordered Banach Spaces*, Proc. Lond. Math. Soc., **3**, (1969), 269–288.
- [12] Z. J. RUAN, *Subspaces of C^* -Algebras*, J. Func. Anal., **29**, (1998), 217–230.
- [13] C. WEBSTER, S. WINKLER, *Krein Milman Theorem for Operator Convexity*, Trans. Amer. Math. Soc., **351**, (1999), 307–322.
- [14] W. WERNER, *Multipliers on matrix ordered operator spaces and some K -groups*, J. Funct. Anal. **206** (2004), 356–378.
- [15] W. WERNER, *Subspaces of $L(H)$ that are $*$ -invariant*, J. Funct. Anal. **193** (2002), 207–223.
- [16] Y. C. WONG, F.G. KUNG, *Partially ordered topologically vector spaces*, Oxford Mathematical Monographs. Clarendon Press, Oxford, (1973).