

C^* -ALGEBRAS AND COMPACT QUANTUM GROUPS

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C^* -algebras

- [Murphy] G. J. Murphy. C^* -algebras and operator theory. Academic Press, 1990. Russian transl.: Factorial, 1997. *One of the best elementary introductions to C^* -algebras.*
- [Davidson] K. R. Davidson. C^* -algebras by example. AMS, 1996. *Less elementary than Murphy's book. After a brief introduction to the basics of C^* -algebras, the author proceeds to a thorough discussion of numerous examples and to more advanced topics.*
- [Blackadar] B. Blackadar. Operator algebras. Springer, 2006. *The book is written in the style of the famous Russian series "Itogi nauki i tehniki, Sovremennye problemy matematiki, Fundamental'nye napravleniya" (some volumes of the series were translated into English under the title "Encyclopaedia of Mathematical Sciences"). In other words, this is a mixture of a monograph, a survey, and a reference book. Most proofs are either omitted or sketched. This enabled the author to cover a variety of diverse topics in a reasonably-sized volume.*
- [Dixmier] J. Dixmier. C^* -algebras and their representations. North-Holland, 1977. Russian transl.: Nauka, 1974. *One of the first modern introductions to the C^* -algebra theory (the 1st French edition appeared in 1964).*
- [KadRingr] R. V. Kadison and J. R. Ringrose. Fundamentals of the theory of operator algebras. Academic Press, 1983 (Vol. 1), 1986 (Vol. 2). *A "bible" of operator algebras. Contains many exercises. The only strange feature of the book is that all C^* -algebras are assumed to be unital.*
- [Takesaki] M. Takesaki. Theory of operator algebras. Springer, 2002 (vol. I), 2003 (vols. II and III). *Another comprehensive monograph on operator algebras. Less elementary than Kadison and Ringrose's book, and covers much more advanced topics.*
- [Helemskii] A. Ya. Helemskii. Banach and locally convex algebras. Oxford, 1993. Russian original: Nauka, 1989. *C^* -algebras are treated from the viewpoint of the general theory of Banach $*$ -algebras.*
- [FD] J. M. G. Fell, R. S. Doran. Representations of $*$ -algebras, locally compact groups, and Banach $*$ -algebraic bundles. Academic Press, 1988. *A two-volume monograph on representations of various functional-analytic structures. In particular, Chapter VI is devoted to C^* -algebras, and Chapter IX deals with compact groups.*
- [Lance] E. C. Lance. Hilbert C^* -modules. A toolkit for operator algebraists. Cambridge Univ. Press, 1995. *A short and user-friendly introduction to Hilbert C^* -modules, with a view towards quantum groups.*

Compact quantum groups

- [Timmermann] T. Timmermann. An invitation to quantum groups and duality. EMS, 2008. *The first book entirely devoted to the functional-analytic aspect of (compact and locally compact) quantum groups.*

- [NeshvTuset] S. Neshveyev, L. Tuset. Compact quantum groups and their representation categories. SMF, 2013. *Compared to Timmermann's book, this is a more detailed introduction to compact quantum groups. Locally compact quantum groups and their duality are not mentioned. On the other hand, the book contains a full treatment of the Tannaka-Krein duality for compact quantum groups.*
- [KlimSchmdgn] A. Klimyk, K. Schmüdgen. Quantum groups and their representations. Springer, 1997. *A fundamental monograph on representations of quantum groups. The emphasis is on the algebraic aspects, but compact quantum groups in Woronowicz's sense are also discussed.*
- [MVD] A. Maes, A. Van Daele. Notes on compact quantum groups. Nieuw Arch. Wisk. (4) 16 (1998), no. 1–2, 73–112. *An expository paper on compact quantum groups. More general locally compact quantum groups are also briefly mentioned.*
- [WorSU2] S. L. Woronowicz. Twisted $SU(2)$ group. An example of a non-commutative differential calculus. Publ. RIMS, Kyoto Univ. **23** (1987), 117–181. *Here the quantum $SU(2)$ was introduced for the first time.*
- [WorMatr] S. L. Woronowicz. Compact matrix pseudogroups. Commun. Math. Phys. **111** (1987), 613–665. *A general theory of compact matrix quantum groups is developed.*
- [WorTann] S. L. Woronowicz. Tannaka-Krein duality for compact matrix pseudogroups. Twisted $SU(N)$ groups. Invent. Math. **93** (1988), 35–76. *The title is self-explanatory.*
- [WorCQG] S. L. Woronowicz. Compact quantum groups. In: “Symétries quantiques” (Les Houches, 1995), 845–884, North-Holland, 1998. *The general notion of a compact quantum group is introduced, and a relation with the earlier matrix approach is established.*