

LMS Research School on Combinatorics and Operators in Quantum Information Theory

References for Grothendieck's Theorem, Optimization and Games

- Everything you ever wanted to know about Grothendieck's Theorem: [Pis12].
- Optimization aspects: [AN06, RS09, KN12, NRV14, BRS16].
- Games: [CHTW10, BBLV13, BV13, PV16, RV15]

REFERENCES

- [AN06] N. Alon and A. Naor. Approximating the cut-norm via Grothendieck's inequality. *SIAM J. Comput.*, 35(4):787–803 (electronic), 2006. Preliminary version in STOC'04.
- [BBLV13] J. Briët, H. Buhrman, T. Lee, and T. Vidick. Multipartite entanglement in XOR games. *Quantum Information & Computation*, 13(3-4):334–360, 2013.
- [BRS16] J. Briët, O. Regev, and R. Saket. Tight hardness of the non-commutative Grothendieck problem. *Theory of Computing*, 2016. To appear. Preliminary version appeared in Proceedings of FOCS 2015. Available at Arxiv:1412.4413.
- [BV13] J. Briët and T. Vidick. Explicit Lower and Upper Bounds on the Entangled Value of Multiplayer XOR Games. *Communications in Mathematical Physics*, 321(1):181–207, 2013.
- [CHTW10] R. Cleve, P. Høyer, B. Toner, and J. Watrous. Consequences and limits of nonlocal strategies, January 2010. Arxiv preprint arXiv: 0404076v2 [quant-ph].
- [KN12] S. Khot and A. Naor. Grothendieck-type inequalities in combinatorial optimization. *Communications on Pure and Applied Mathematics*, 65(7):992–1035, 2012.
- [NRV14] A. Naor, O. Regev, and T. Vidick. Efficient rounding for the noncommutative Grothendieck inequality. *Theory of Computing*, 10(11):257–295, 2014. Preliminary version in STOC'13.
- [Pis12] G. Pisier. Grothendieck's theorem, past and present. *Bull. Amer. Math. Soc.*, 49(2):237–323, 2012. Also available at arXiv:1101.4195.
- [PV16] C. Palazuelos and T. Vidick. Survey on nonlocal games and operator space theory. *Journal of mathematical physics*, 57(1):015220, 2016.
- [RS09] P. Raghavendra and D. Steurer. Towards computing the Grothendieck constant. In *Proc. 20th ACM-SIAM Symp. Discrete Algorithms (SODA 09)*, pages 525–534. SIAM, Philadelphia, 2009.
- [RV15] O. Regev and T. Vidick. Quantum XOR games. *ACM Transactions on Computation Theory (ToCT)*, 7(4):15, 2015.