Quantum Computing Seminar

Cohomological framework for contextual quantum computation

By

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Abstract: In a previous talk the topological approach to contextuality was introduced based on chain complexes and cohomology theory. Here many aspects of this framework are carried over with the explicit goal of studying (temporally flat) MBQC more carefully. Within this framework two types of topological invariants are identified; one relevant for the deterministic case, while the other for the probabilistic case. An essential takeaway is that the outputs of a computation within this formalism are directly related to these topological invariants, thus the "hardness" of the computation is characterized by equivalence classes related to topology.

References: arXiv:1602.04155

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