Revealing contextuality of quantum configurations with a SAT solver

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Résumé

We present a use of a SAT solver to decide the quantum contextuality and evaluate the contextuality degree (a way to quantify contextuality) for a variety of point-line geometries located in binary symplectic polar spaces of small rank. With this code we were not only able to recover, in a more efficient way, all the results of a recent paper by de Boutray et al (J. Phys. A: Math. Theor. 55 475301, 2022), but also arrived at a bunch of new noteworthy results. This poster describes the approach, and presents the results for a number of subspaces of symplectic polar spaces whose rank ranges from two to seven, as well as the proofs that were found with the help of these results. Working group: LVP

Mots-Clés: Quantum geometry, Multi qubit observables, Quantum contextuality, Contextuality degree

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