FACES OF THE STABILISER POLYTOPE AND ROBUSTNESS MEASURES

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ABSTRACT. The stabiliser polytope plays an essential role in the magic state model of fault tolerant quantum computation. In this model all unitary gates belong to the Clifford group and Non-Clifford operations are effectuated by injecting magic states which are states lying outside the stabiliser polytope. The stabiliser polytope can be embedded in a larger family of polytopes and I will investigate a certain type of its faces which are related to integral points in a dual version of the stabiliser polytope. Besides, I will discuss the application of a hyperplane description of a polytope to the robustness of magic, a measure that is closely related to the robustness of entanglement and measures the utility of a state for the procedure of magic state distillation.