

A correspondence between quantum error correcting codes and gauge theories

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I will introduce a correspondence between the language of quantum error correcting codes and that of gauge theory. I will focus more specifically on the well-studied family of **stabilizer codes**, which can be interpreted as Abelian gauge theories with gauge group a product of \mathbb{Z}_2 . This class of codes includes repetition codes such as the elementary three-qubit code, and topological codes such as Kitaev's toric code, which I will use as illustrative examples. Based on on-going work with A. Chatwin-Davies, P. Höhn, and F. M. Mele.

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