

Quantum Physics

Universal Framework for Quantum Error-Correcting Codes

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We present a universal framework for quantum error-correcting codes, i.e., the one that applies for the most general quantum error-correcting codes. This framework is established on the group algebra, an algebraic notation for the nice error bases of quantum systems. The nicest thing about this framework is that we can characterize the properties of quantum codes by the properties of the group algebra. We show how it characterizes the properties of quantum codes as well as generates some new results about quantum codes.

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