

Quantum Physics

Two infinite families of nonadditive quantum error-correcting codes

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We construct explicitly two infinite families of genuine nonadditive 1-error correcting quantum codes and prove that their coding subspaces are 50% larger than those of the optimal stabilizer codes of the same parameters via the linear programming bound. All these nonadditive codes can be characterized by a stabilizer-like structure and thus their encoding circuits can be designed in a straightforward manner.

Comments: 4 pages with 1 figure and 1 table

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