

International Conference on Quantum Technologies for High-Energy Physics



Contribution ID: 153

Type: **talk**

Fault-tolerant simulation of Lattice Gauge Theories with gauge covariant codes

Thursday, January 23, 2025 10:30 AM (15 minutes)

Quantum computers are a promising platforms to efficiently simulate systems hard to tackle on classical machines. An important challenge to overcome is the efficient control of errors that, if left undisturbed, make quantum simulations useless. A solution to this challenge is quantum error correction, that exploiting redundancy is able to correct errors. In this talk I will explore the connections between quantum error correction and lattice gauge theories and exploit them to propose a path forward for error corrected simulations of interest for high energy physics.

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Short summary

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Session Classification: Quantum Computing