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Spectrum Generating Algebra in Higher Dimensional Gauge Theories

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The existence of an approximate spectrum-generating algebra in the PXP model has been extensively studied as a mechanism underlying quantum many-body scars. Since the PXP model can be mapped to a gauge theory in one spatial dimension, a natural question arises: can similar algebraic structures and scar-like dynamics occur in higher-dimensional gauge theories? In this work, we show that this is the case by analyzing different types of quantum revivals in higher-dimensional gauge theories. Furthermore, we outline a pathway toward their experimental realization, as a new direction for exploring non-ergodic dynamics in constrained quantum systems.

Parallel Session (for talks only)

Quantum computing and quantum information

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