Contribution ID: **81**   Type: **5th week (Formal developments and other frontiers in lattice QCD)**

Simulating Floquet prethermalization of lattice gauge theory using superconducting qubits

Thursday, November 14, 2024 11:30 AM (1 hour)

Motivated by recent developments in quantum computing, many efforts have been devoted to exploring their potential applications in high-energy physics, particularly in simulation of lattice gauge theories. However, the capability of present quantum computers is very limited due to noise, and simulating the physics problems is still challenging. In this presentation, we talk about a digital quantum simulation of a physics motivated problem feasible to quantum computers i.e., thermalization in Floquet circuit made of lattice gauge theories. We show experimental results computed using IBM's quantum processor named ibm_fez that consists of 156 superconducting qubits. We demonstrate that even present noisy quantum computers can simulate short time physics such as the emergence of Floquet prethermal plateau by implementing error mitigation.

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