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Sachdev-Ye-Kitaev (SYK) Model on Noisy Quantum Computers

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The Sachdev-Ye-Kitaev (SYK) model is a fermionic model with N-flavors in $(0+1)$-dimensions that has holographic properties and saturates the Chaos bound in the large N, and low-temperature limit, where the model gains an approximate conformal symmetry. We propose an improved resource scaling $\mathcal{O}(N^5 J^2 t^2/\epsilon)$, and show results from noisy quantum hardware for $N = 6, 8$. In another upcoming paper, we study the SYK model at finite temperature using Variational methods and prepare thermal states for up to $N = 12$ on simulators and $N = 8$ on hardware.

Mini Symposia (Invited Talks Only)

Authors: SAMBASIVAM, Bharath; Prof. RINGER, Felix (Old Dominion University, Jefferson Lab); Dr ARAZ, Jack (Jefferson Lab); Dr ASADUZZAMAN, Muhammad (The University of Iowa); Dr JHA, Raghav (Jefferson Lab)

Presenter: SAMBASIVAM, Bharath

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