Does the eigenstate thermalization hypothesis hold for non-local operators? JAMES R. GARRISON, UCSB, TARUN GROVER, KITP — The eigenstate thermalization hypothesis (ETH) posits that given a single finite energy density eigenstate of a Hamiltonian, the expectation values of certain operators will match the values they would take in the canonical ensemble. Although ETH does not hold in all systems (notable exceptions include those that are integrable or exhibit many-body localization), even in systems where it does hold it is not obvious for which class of operators it is satisfied. Here, we study a non-integrable spin model via exact diagonalization and employ some general arguments to better understand which non-local operators satisfy or fail to satisfy ETH.

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