Abstract Submitted
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Many-body localization in a quantum system subject to a local periodic drive[1] CANRAN XU, MAXIM VAVILOV, Univ of Wisconsin, Madison — We consider a one dimensional spin chain system with quenched disorder and in the presence of a local harmonic drive. We study the time evolution of the system in the Floquet basis and evaluate the Bures displacement of the system in the Hilbert space caused by the drive per one period. This displacement can be used to identify two phases of the system: (1) the many-body localized phase, in which the distribution of the distance exhibits long tails while its average value decreases rapidly as disorder increases; and (2) the ergodic phase, in which the displacement distribution is narrow and its average value weakly depends on disorder. This distinction in the average value of the displacement between the two phases develops readily for system with ten or more spins. Therefore, recently built networks of superconducting qubits subject to a local microwave drive can simulate dynamics of a system in the many-body localization regime.

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