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A verification scheme for universal quantum computers

Monday, 4 July 2022 16:00 (15 minutes)

We present a new verification scheme for universal quantum computers that yields the number of qubits and an error probability which measures the noise present in the system. The new scheme is based on detecting the standard deviation of the meta probability distribution of output values for an arbitrary qubit probed by random quantum gates. The results are generated directly from output statistics of the quantum computer and do not require any assistance by classical computers. With current technology quantum computers with up to 40 qubits could be tested with our method, but in future, given faster quantum processors, it might be used to prove quantum supremacy.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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