

Quantum computer health check via quantum random number generation

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All computing devices, including quantum computers, must exhibit that for a given input, an output is produced in accordance with the program. The outputs generated by quantum computers that fulfill these requirements are not temporally correlated, however. In a quantum computing device comprising solid-state qubits such as superconducting qubits, any operation to rest the qubits to their initial state faces a practical problem. On the implementation of the scalable quantum computers, the health check (or stability check) algorithms are needed. We propose that the quantum random number generation is one of the candidates of the health check algorithms in any quantum computing devices.

