

Abstract Submitted  
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**Holonomic quantum computation using rf superconducting quantum interference devices coupled through a microwave cavity** JIADA SUN, PENG ZHANG, ZIDAN WANG, CHANGPU SUN — We propose a different scheme to realize holonomic quantum computation with rf superconducting quantum interference device (SQUID) qubits in a microwave cavity. In this scheme associated with the non-Abelian holonomies, the single-qubit gates and a two-qubit controlled-PHASE gate as well as a controlled-NOT gate can be easily constructed by tuning adiabatically the Rabi frequencies of classical microwave pulses coupled to the SQUIDS. The fidelity of these gates is estimated to be possibly higher than 90% with the current technology.

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