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(54) **SUPERCONDUCTING EXCLUSIVE-OR (XOR) GATE SYSTEM**

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(57) **ABSTRACT**

One example describes a superconducting XOR-gate system. The system includes a pulse generator configured to generate a decision pulse. The system also includes an input superconducting XOR-2 gate that receives a first superconducting logic input signal and a second superconducting logic input signal and is configured to perform a logic XOR function based on the decision pulse on a given phase of a clock signal to provide an intermediate superconducting logic output signal. The system also includes an output superconducting XOR-2 gate that receives the intermediate superconducting logic output signal and a third superconducting logic input signal and is configured to perform a logic XOR function based on the decision pulse on the given phase of the clock signal to provide a superconducting logic output signal.