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- (54) Title: SYSTEMS AND METHODS FOR OPTIMIZING SPIN QUBIT READOUT

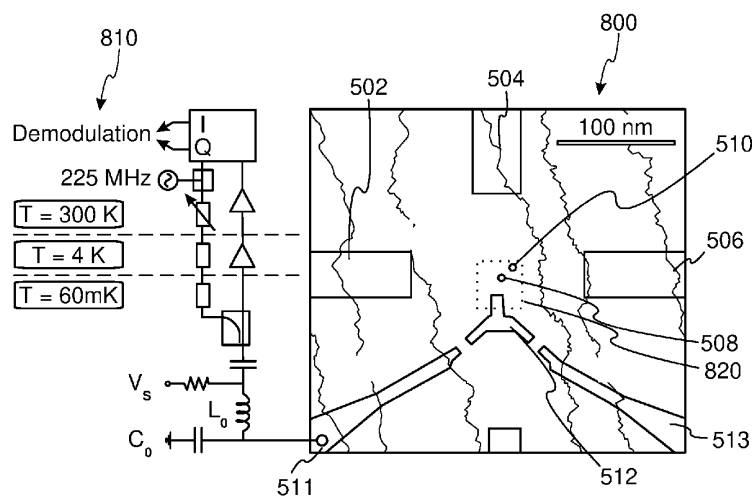


FIG. 8A

(57) **Abstract:** Aspects of the present disclosure provide mechanisms to optimize qubit readout using known readout techniques. To do so, some aspects of the present disclosure control a tunneling rate between a qubit being measured and a charge sensor/reservoir. If PSB based readout is desirable for a quantum processing system, aspects of the present disclosure increase the asymmetry of the tunneling rates between two quantum dots tunnel-coupled to the SET/reservoir. If reservoir readout is desirable for a quantum processing system, aspects of the present disclosure adjust the tunneling rate between a quantum dot and the SET/reservoir for improved efficiency of the readout method.

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