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Robust operating point for capacitively coupled singlet-triplet qubits MICHAEL WOLFE, J.P. KESTNER, University of Maryland, Baltimore County — Singlet-triplet qubits confined by electrically gated double quantum dots exhibit fast single-qubit gates via exchange interaction. In addition, two-qubit entangling gates are achieved via non-local capacitive coupling. Both of these interactions are controlled by tilting the double dots, which is sensitive to background charge fluctuations. By considering a mode of tilting where the interqubit electrostatic interaction balances the exchange interaction, we report a theoretical sweet spot such that the effective exchange is insensitive to charge fluctuations. We simulate the fidelity of the entangling gates in this regime when the qubits are perturbed by 1/f charge noise.

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