

Erratum: Phonon-mediated decay of singlet-triplet qubits in double quantum dots
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In our original paper, we investigated the phonon-mediated decay of singlet-triplet qubits in double quantum dots (DQDs) in the biased and unbiased regime, where we inadvertently omitted relevant references regarding the dephasing mechanism which does not require hyperfine or spin-orbit interaction. Here, we wish to correct this omission and note that this mechanism corresponds to a two-phonon Raman process and has been studied before for impurity atoms [1–4], particularly in the presence of singlet states [2–4]. The same mechanism is used in Ref. [5] to analyze the dephasing of singlet-triplet qubits in unbiased DQDs. We note that the conclusions of our original paper and Ref. [5] substantially differ from each other. While Ref. [5] finds dominant dephasing times due to this Raman process, we find that this process for dephasing is negligible in the unbiased regime for realistic DQD parameter values (see Appendix H in our original paper).

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