

Abstract Submitted
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Control of electron spin and orbital resonance in quantum dots through spin-orbit interactions¹ PETER STANO, JAROSLAV FABIAN, University of Regensburg — Dynamics of a single electron in coupled lateral quantum dots in the presence of a static and oscillating electric and magnetic fields as well as phonon-induced relaxation and decoherence is investigated. Using symmetry arguments it is shown that spin and orbital resonance can be efficiently controlled by spin-orbit couplings. The so called easy passage configuration is shown to be particularly suitable for magnetic manipulation of spin qubits, ensuring long spin relaxation time and protecting the spin qubit from electric field disturbances connected with on-chip manipulation.

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Peter Stano
University of Regensburg

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