

Publication**Anisotropy and Suppression of Spin-Orbit Interaction in a GaAs Double Quantum Dot****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4631364**Author(s)** Hofmann, A.; Maisi, V. F.; Krähenmann, T.; Reichl, C.; Wegscheider, W.; Ensslin, K.; Ihn, T.**Author(s) at UniBasel** [Hofmann, Andrea](#) ;**Year** 2017**Title** Anisotropy and Suppression of Spin-Orbit Interaction in a GaAs Double Quantum Dot**Journal** Physical Review Letters**Volume** 119**Number** 17**Pages / Article-Number** 176807

The spin-flip tunneling rates are measured in GaAs-based double quantum dots by time-resolved charge detection. Such processes occur in the Pauli spin blockade regime with two electrons occupying the double quantum dot. Ways are presented for tuning the spin-flip tunneling rate, which on the one hand gives access to measuring the Rashba and Dresselhaus spin-orbit coefficients. On the other hand, they make it possible to turn on and off the effect of spin-orbit interaction with a high on/off ratio. The tuning is accomplished by choosing the alignment of the tunneling direction with respect to the crystallographic axes, as well as by choosing the orientation of the external magnetic field with respect to the spin-orbit magnetic field. Spin lifetimes of 10 s are achieved at a tunneling rate close to 1 kHz.

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