## (Invited) Electrically driven electron spin resonance mediated by spin-orbit coupling in a silicon quantum dot

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Electron spins in silicon quantum dots represent a leading approach for the development of solid-state quantum computing. However, spin manipulation by magnetic spin resonance is a serious bottleneck in view of a large scale integration. On the other hand, the electrical manipulation of the spin of electrons is notoriously difficult in silicon due to the weak spin-orbit coupling in the conduction band. Here we demonstrate electric dipole spin resonance (EDSR) in the conduction band of a silicon-on-insulator (SOI) nanowire quantum dots device. We show that the experimental EDSR spectrum is consistent with an electrically driven spin resonance resulting from the interplay between valley and spin-orbit coupling. We support our theory with tight-binding simulations. In particular we reveal that spin-orbit coupling in the conduction band is enhanced in the ``corner'' dots typical of SOI nanowire devices. Our findings open new perspectives for the development of compact and scalable electron spin qubits in silicon.

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