

Spin Qubits in Semiconductors for Scalable Quantum Computers

Daniel Loss

University of Basel, Department of Physics, Basel, Switzerland

daniel.loss@unibas.ch

Abstract: Semiconductor spin qubits offer a unique opportunity for scalable quantum computation by leveraging classical transistor technology. This has triggered a worldwide effort to develop spin qubits, in particular, in Si and Ge based quantum dots, both for electrons and for holes [1-4]. Due to strong spin orbit interaction, hole spin qubits benefit from ultrafast all-electrical qubit control and sweet spots to counteract charge and nuclear spin noise. In this talk I will present an overview of the state-of-the-art in the field and focus, in particular, on recent developments on hole spin physics in Ge and Si nanowires, Si FinFETs, and Ge heterostructures [5,6].

References

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