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[805] Coherent manipulation of a Ge/Si core-shell nanowire based gatemon qubit

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Transmon qubits based on superconducting circuits are the most popular platform in NISQ era and have witnessed many significant advancements. However, there are several challenges, such as flux noise, crosstalk between qubits, and thermal load due to flux bias. A possible solution are semiconductor-superconductor hybrid systems. The weak link in transmon is substituted by a gate-tunable semiconductor junction, known as gatemon qubit. In this work, we present a gatemon qubit based on a Ge/Si core-shell nanowire Josephson junction. On this new platform we demonstrate the electrical tunability and coherent manipulation of the gatemon qubit, with coherence times on par with other gatemon platforms.

Theoretical Work

Author:ZHENG, Han (University of Basel)Presenter:ZHENG, Han (University of Basel)Session Classification:Quantum Computing

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