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**Realization of an integrated double spin qubit device on
ultra-thin Silicon-on-insulator**

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This work presents a Si-based double spin qubit device integrated with a single electron electrometer and a u-ESR. Structural design and analysis was performed using 3D FEM simulations, dynamical analysis of single electron turnstile operation is demonstrated using Monte Carlo single electron simulations [1]. The spin qubits and the electrometer are realized as SOI nanowires (NWs) with an upper metal gate, which induces an inversion layer in the NW channels, and multiple lower Poly-Si control gates to enable single electron turnstile operations. The device was successfully fabricated using e-beam lithography with subsequent pattern transfer by deposition and dry etching.

[1] F. Alkhail *et al.*, *ESSDERC/ESSCIRC Fringe*, Seville, (2010).



Invited Talk



Prefer Contributed Oral Presentation



Prefer Poster Presentation

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Topic: Charges and spins