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Accumulation-Only Device Architecture for Si/SiGe Quantum Dots[1] K. WANG, D. ZAJAC, T. HAZARD, C. PAYETTE, J.R. PETTA, Princeton University — Silicon is one of the most promising candidates for ultra coherent quantum bits due to its relatively weak spin-orbit coupling and the absence of nuclear spin in its naturally abundant isotope [1]. High quality charge and spin qubits have been demonstrated with a dual-gate device geometry [1] [2]. Due to the larger effective mass of electrons in Si, it is desirable to have a more tightly confined quantum dot to increase the orbital level spacings. Here we demonstrate a new silicon quantum dot device architecture. The quantum dot and potential barriers are individually formed by corresponding accumulation gates, potentially allowing more precise control over electron occupation and tunnel coupling. The gate geometry can also be scaled up to create multiple quantum dot devices. [1] B. W. Maune *et al.*, Nature **481**, 344 (2012). [2] K. Wang *et al.*, Phys. Rev. Lett. **111**, 046801 (2013).

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