

Abstract Submitted  
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**Charge transport in silicon double quantum dots** TED THORBECK, JQI, NIST and U. of Maryland, NEIL ZIMMERMAN, NIST, AKIRA FUJIWARA, YUKINORI ONO, YASUO TAKAHASHI, HIROSHI INOKAWA, NTT Basic Research Laboratory — Double quantum dots are an essential component for many schemes of semiconductor quantum computation. We will present results for transport through a silicon double quantum dot system. Our devices are formed by mesa-etching an SOI wafer to form a nanowire, and then poly-silicon gates are deposited. A global gate is used to invert and local gates form tunnel barriers isolating quantum dots and controlling the potential of the dots. Because the coupling between the two dots is controllable, a transition from a single dot, to two coupled dots, to two uncoupled dots is observed. We will analyze the resulting honeycomb diagram. We also hope to present results in the few electron regime.

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