DEVICES FOR QUANTUM INFORMATION PROCESSING

Triple Quantum Dots

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In this talk I will briefly discuss two recent experiments. Triple Quantum dot few electron systems are potentially useful for studying novel physics, demonstrating quantum information functionalities such as entanglement and spin buses as well running simple algorithms. I will describe our new lateral triple dot in series layout, focusing on the excellent stability diagram tunability that we are able to achieve with it. In the second experiment I will discuss measurements of conductance fluctuations in a graphene monolayer across the electron-hole puddle regime near the charge neutrality point. I will demonstrate that at even fairly low magnetic fields the results are dominated by single electron charging of incidental Quantum Hall Quantum dots. From our measurements we are able to extract parameters for the size and range of the fluctuations.