

Short echo

- Faster nuclear bath? (300-500 ns in InAs vs. 10 μ s in GaAs)

Larger nuclear spin for Indium (9/2)

Quadrupolar nuclear-nuclear relaxation...

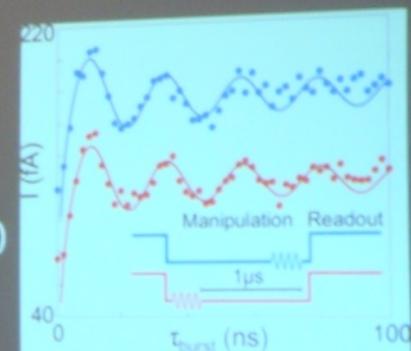
- Charge noise?...

- Paramagnetic impurities?..

Even fluctuating nuclei can be dealt with!

(Bluhm et al, arxiv, Nature Physics 2010)

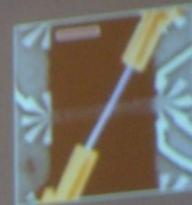
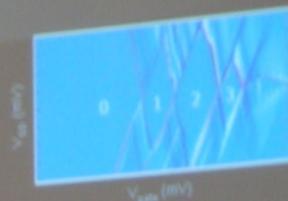
Relaxation $>> 1 \mu$ s



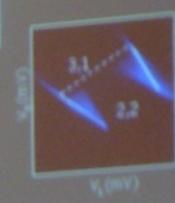
Qubit checklist



Isolate single electrons



Readout and initialization (spin blockade)



Universal coherent control



Two-qubit operations (via exchange interaction)
Fight decoherence (via nuclear state preparation)