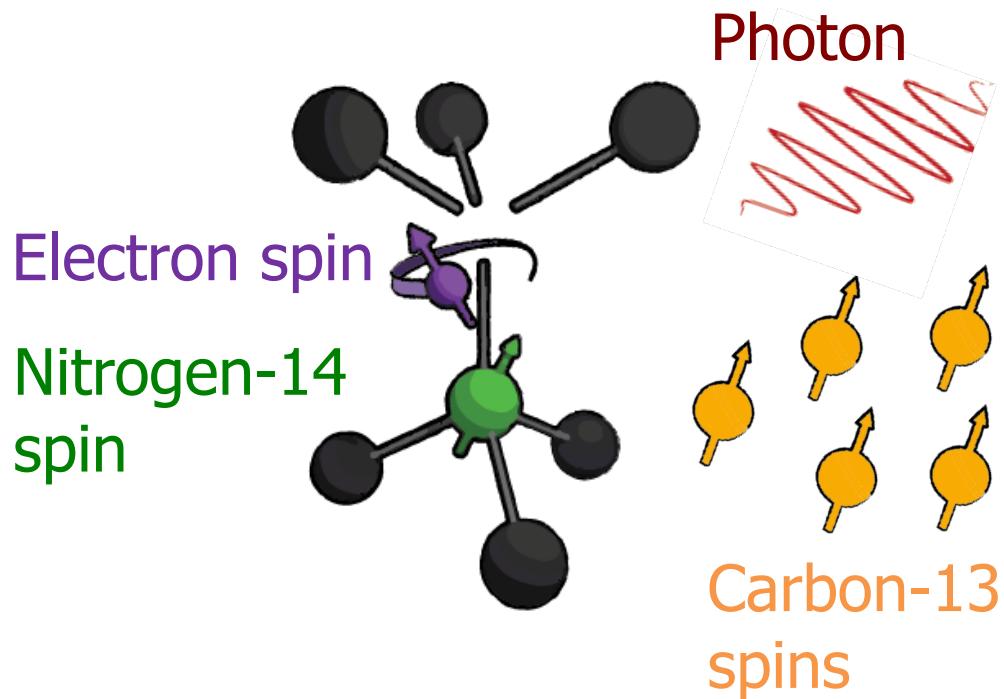


Tim Taminiau
NV Center Qubit

The NV center in diamond

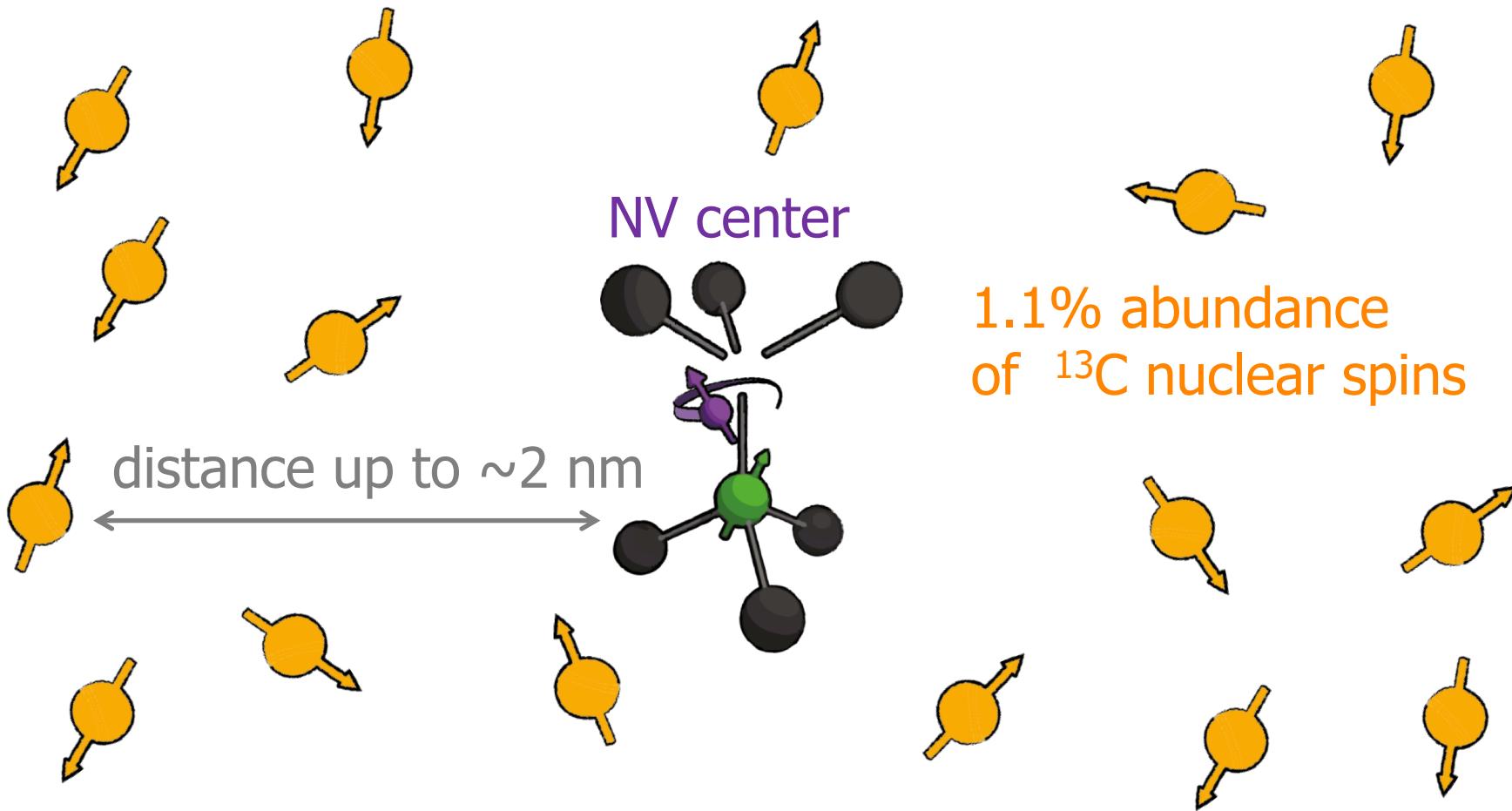


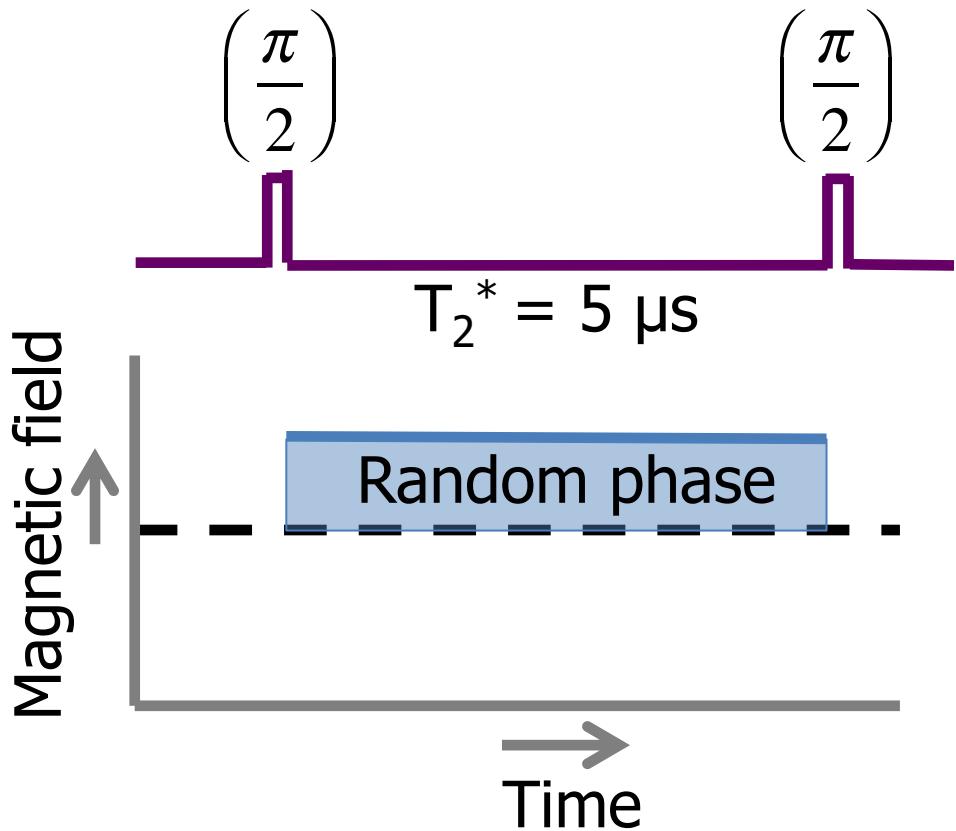
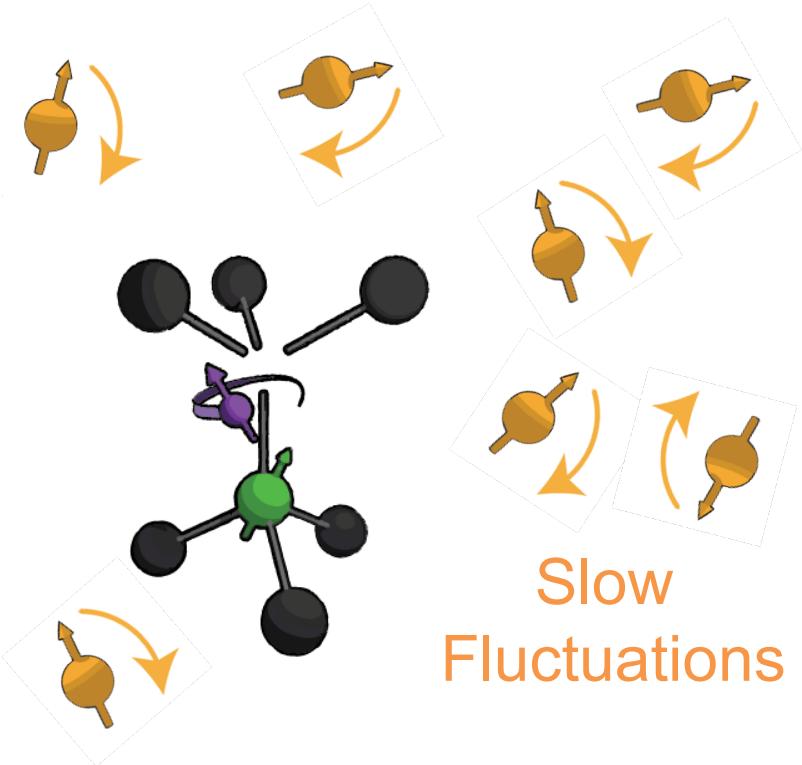
Key features

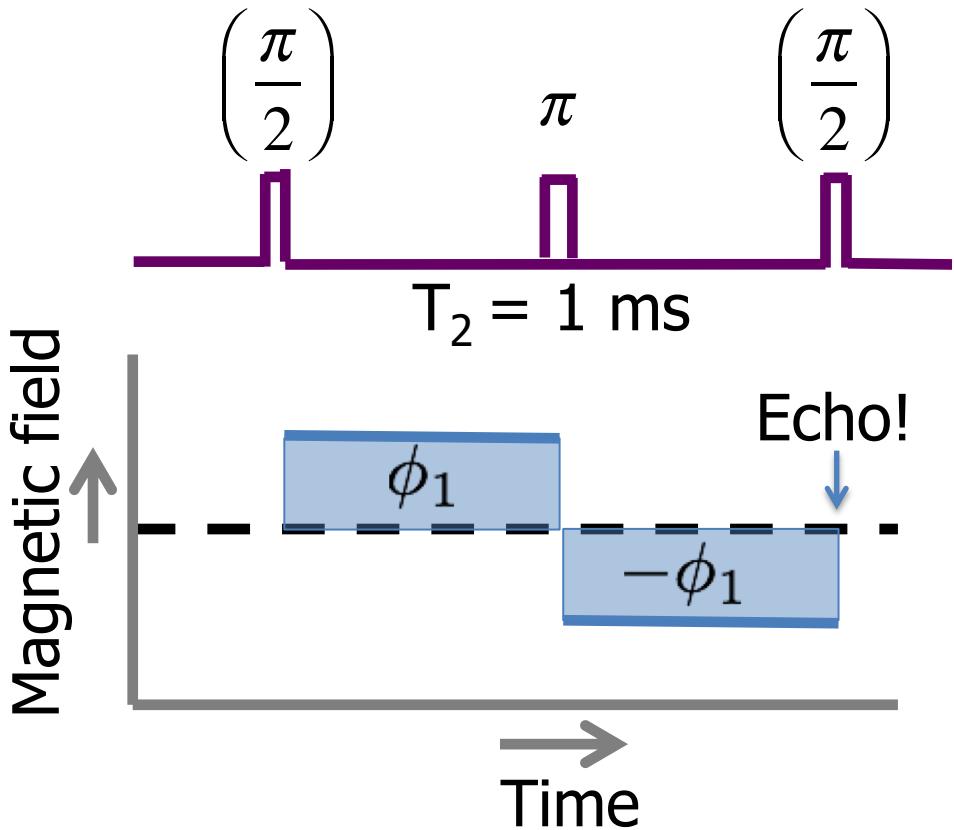
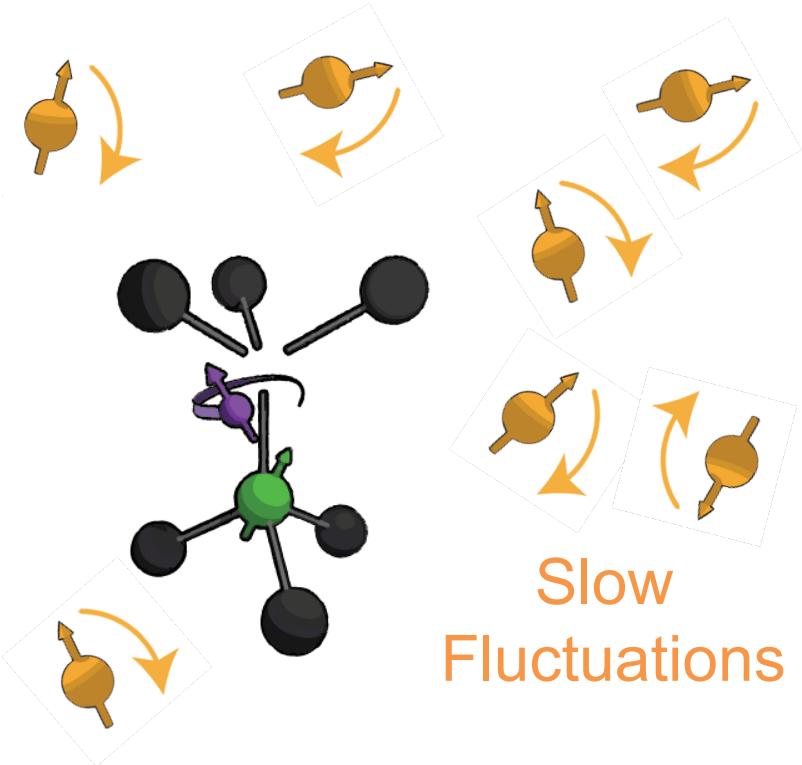
Long coherence times
(even at 290 K)

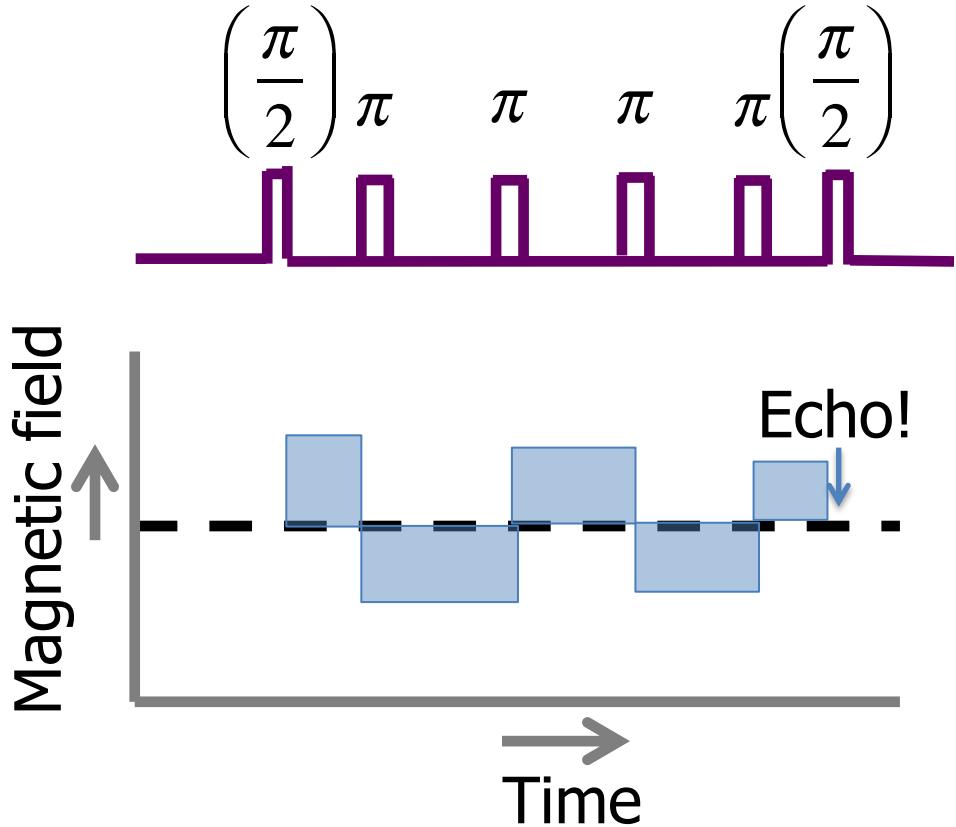
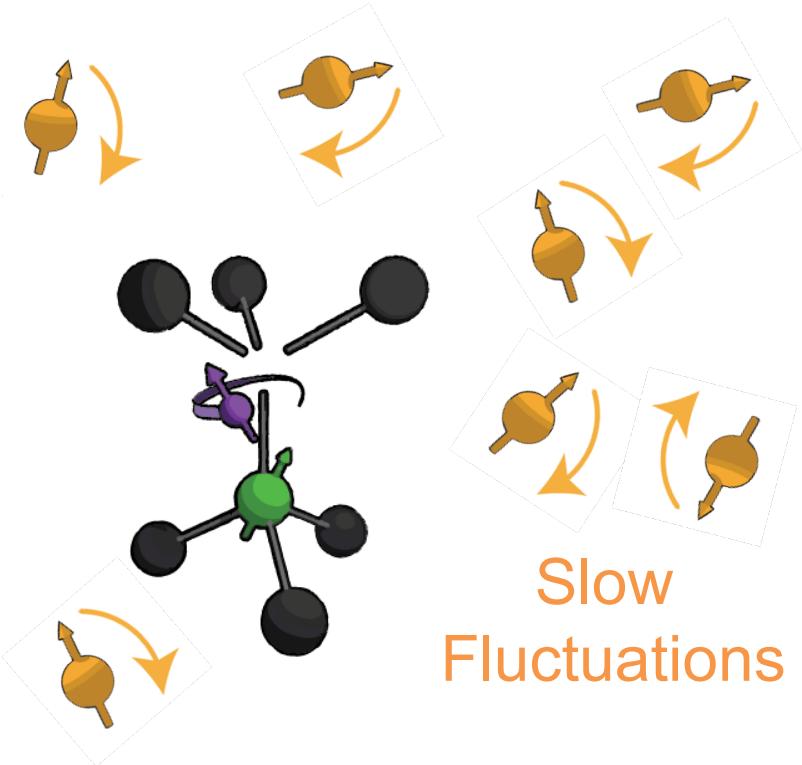
Combines different qubits

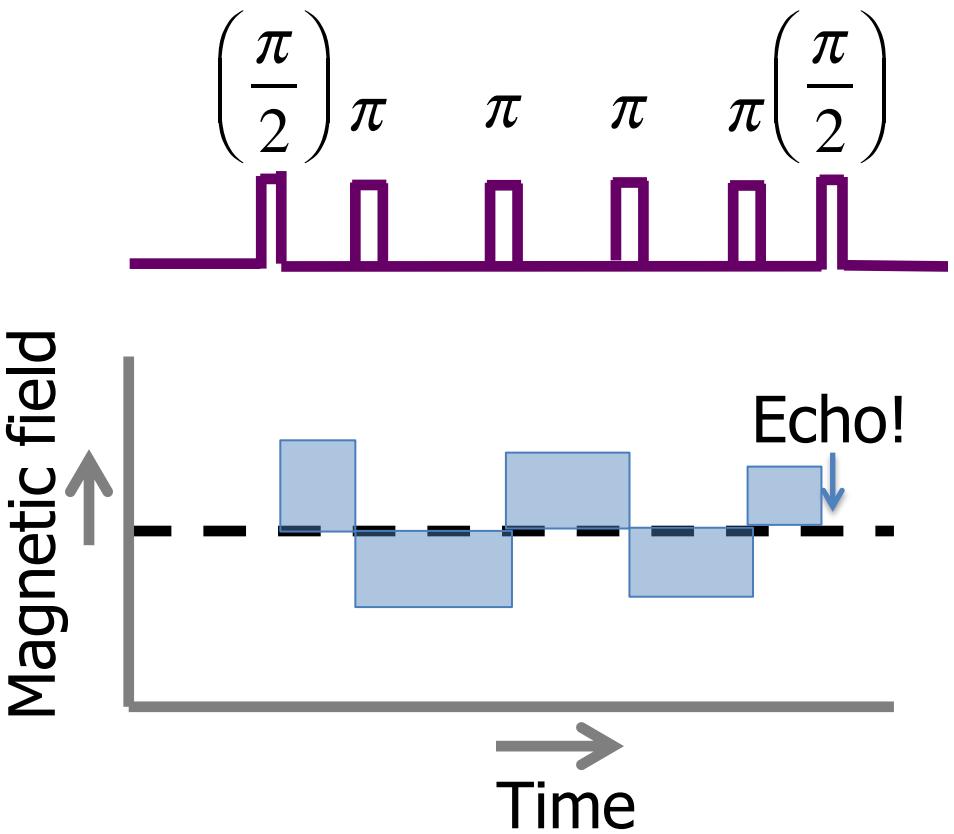
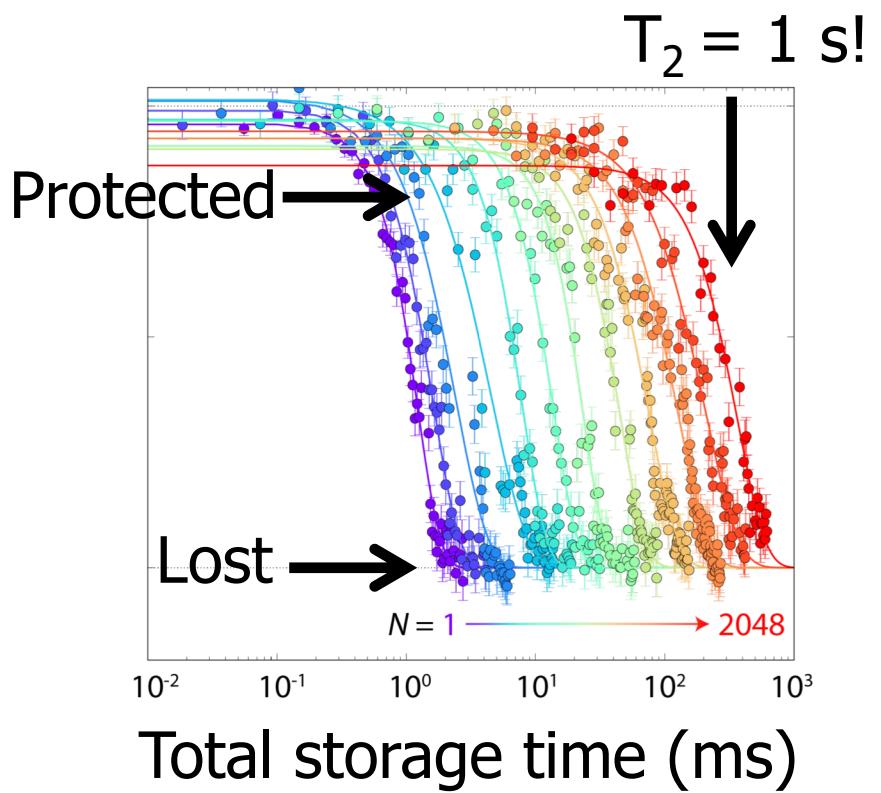
Optical interface

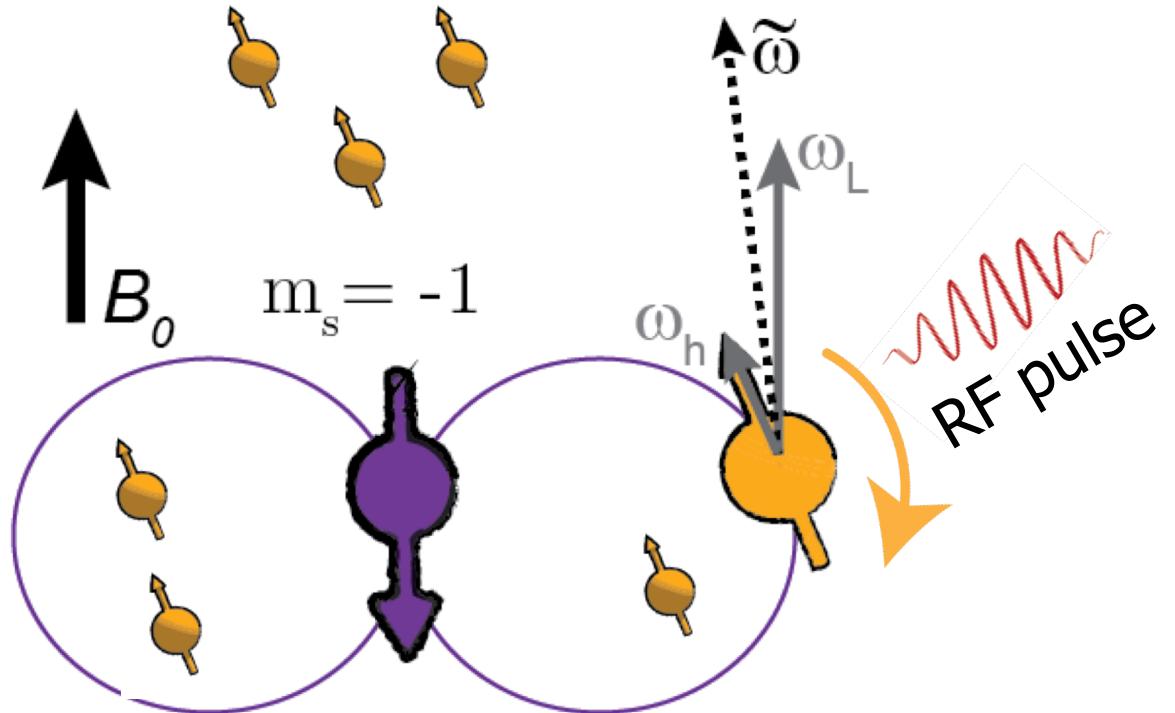


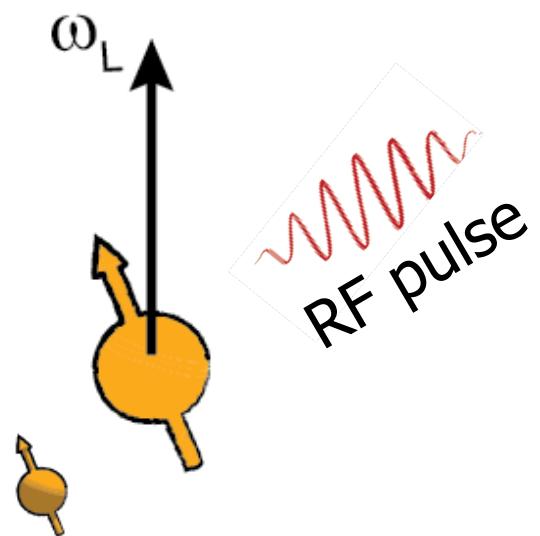
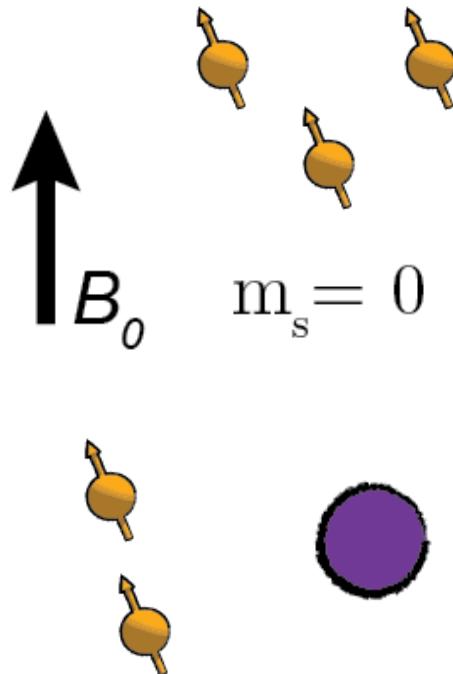




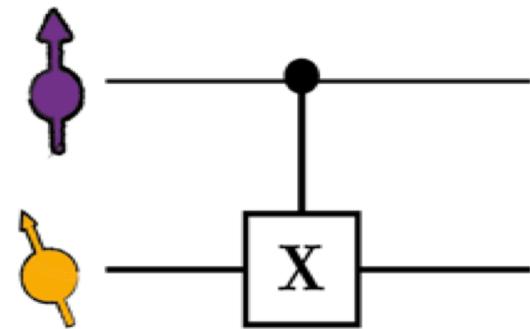






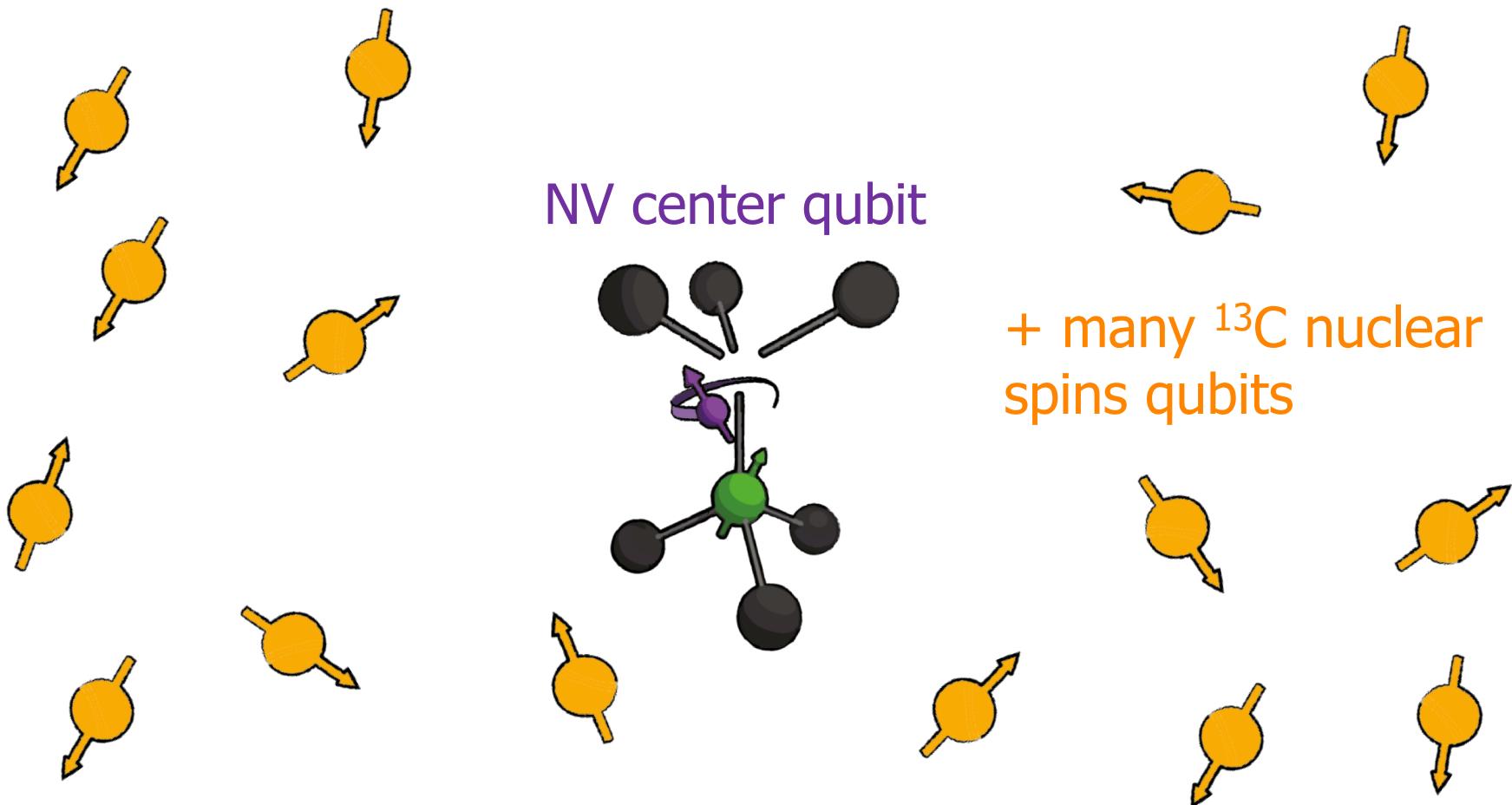


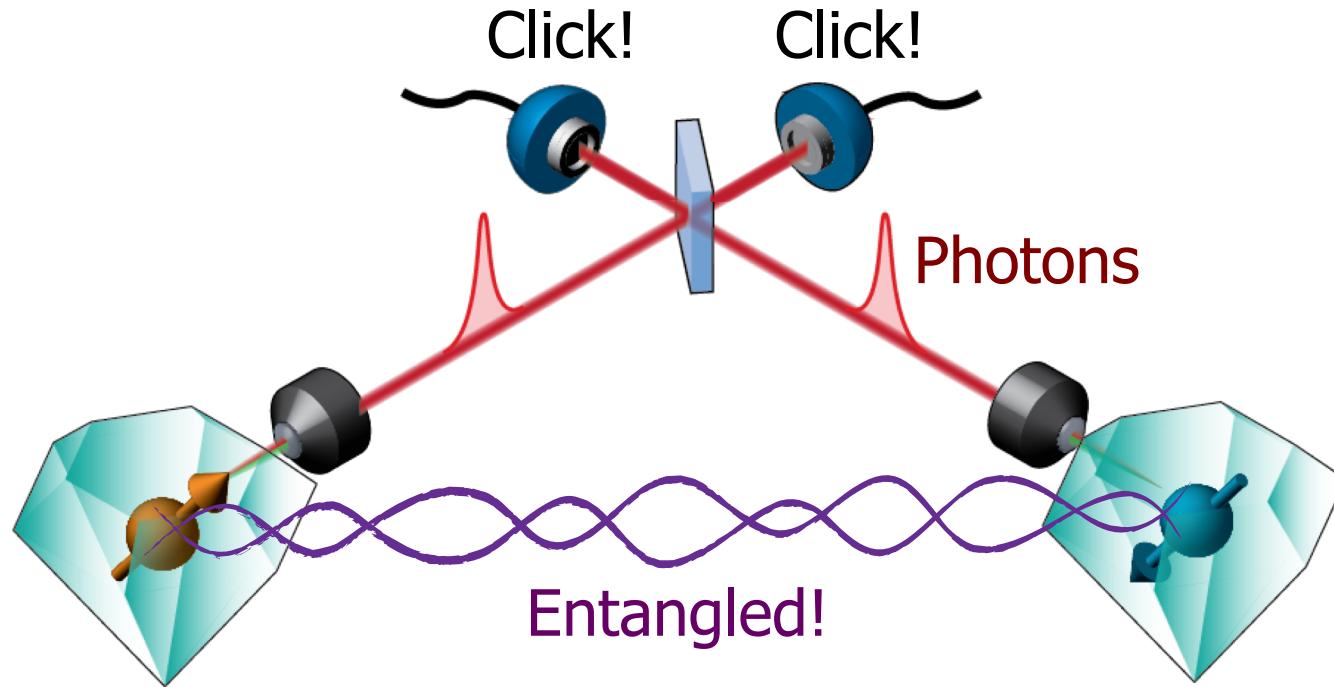
A controlled-NOT



NV center qubit

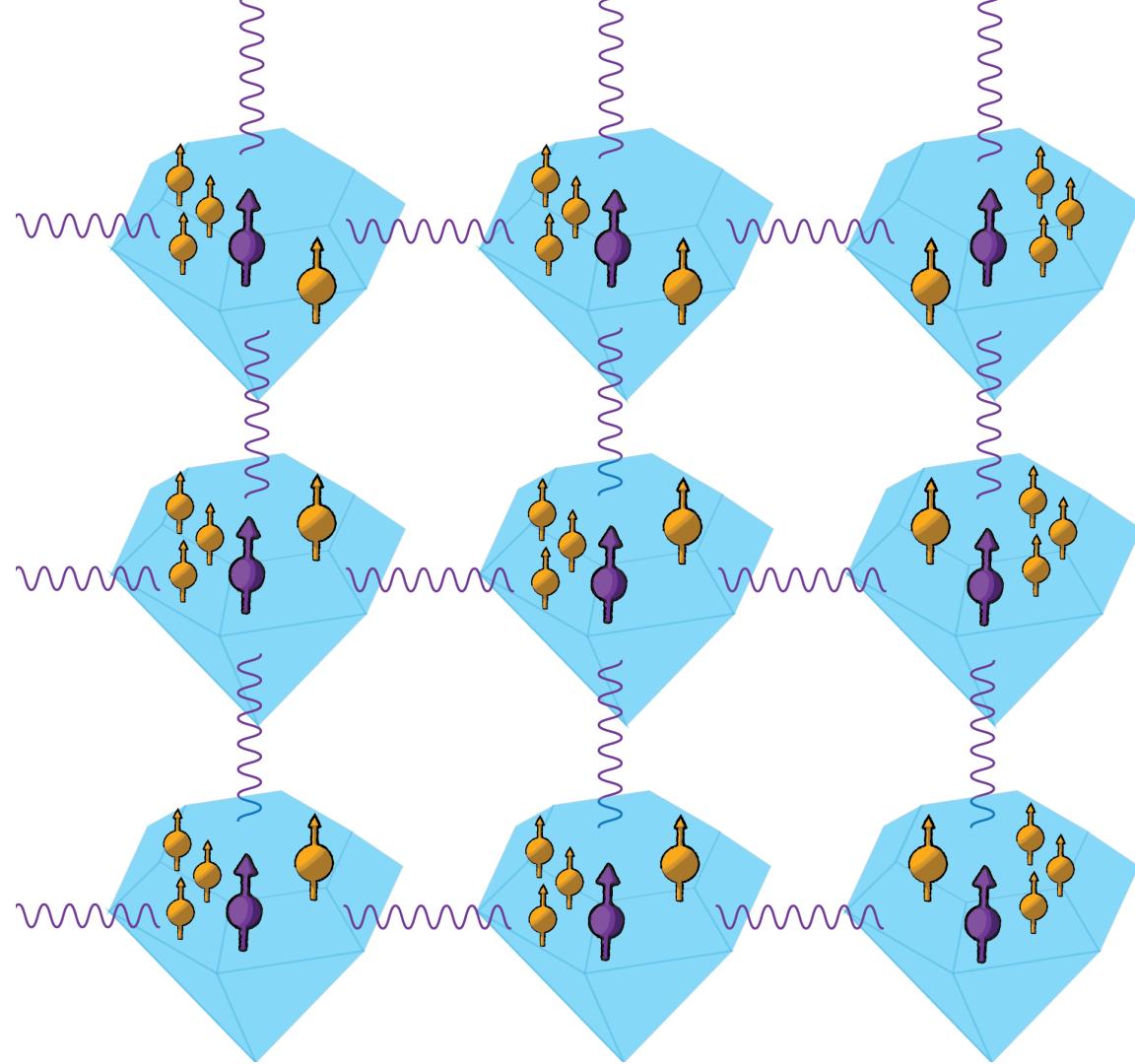
+ many ^{13}C nuclear
spins qubits





Entanglement over 1.3 km





Next:
Quantum networks
for
Quantum computation
and
Quantum communication