

Atom Chips

Amsterdam



Quantum Logic with Atomic Ensembles

In this project you will estimate the fidelity of quantum operations in small ensembles of atoms, and develop optimal strategies for suppressing decoherence in this system.

Atom chips are devices for manipulating atoms at the quantum scale. They allow us to capture ultracold atoms in an array of hundreds of traps close to the surface of the chip. We aim to realize robust quantum logic in this system using collective excitations within these atomic ensembles. An open question is the role of fluctuations of the atom number in each ensemble.

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