

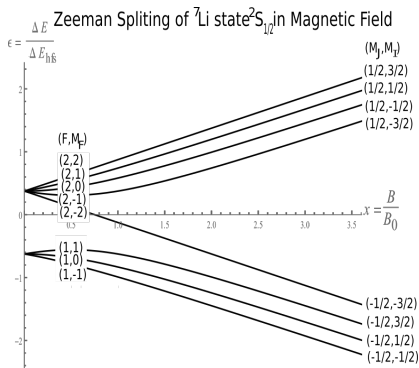
Magnetic Field Oscillation in Adiabatic Slower System for Cold Atom Physics

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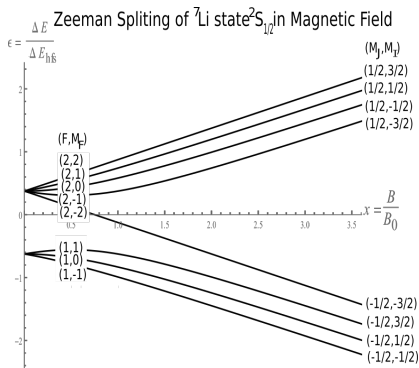
December 1st, 2016

Adiabatic slower and Field Oscillation

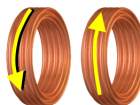


<http://demonstrations.wolfram.com/BreitRabiDiagram/>

Adiabatic slower and Field Oscillation



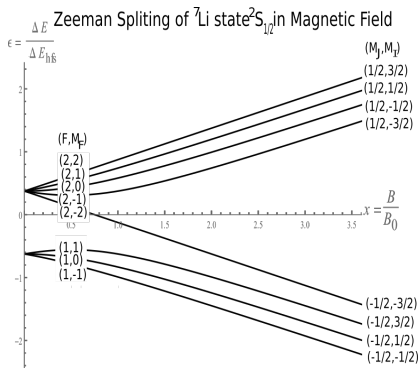
Anti-Helmholtz Coil



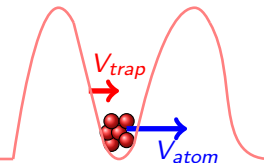
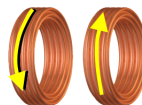
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E. Narevicius and M. G. Raizen. Chem. Rev. 112, 4879 (2012)

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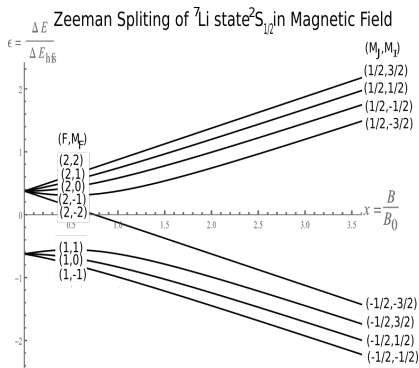
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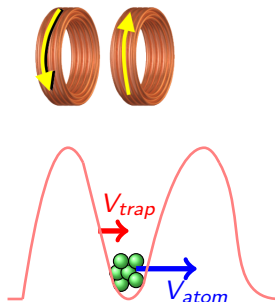
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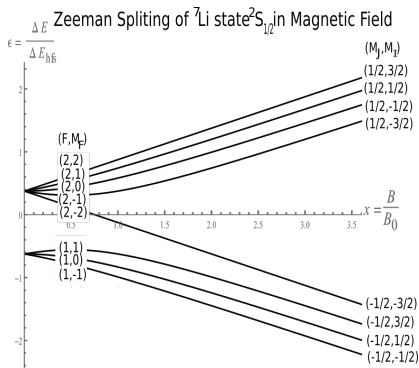
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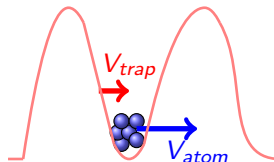
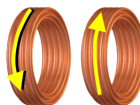
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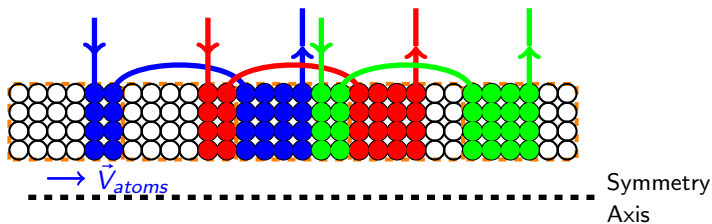
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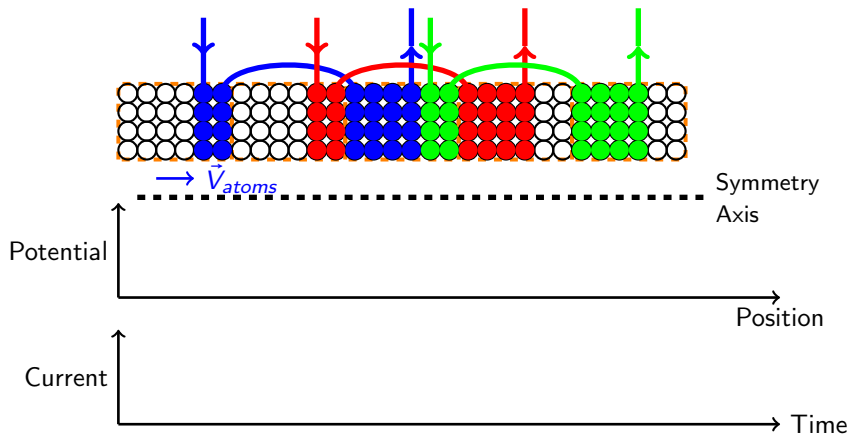
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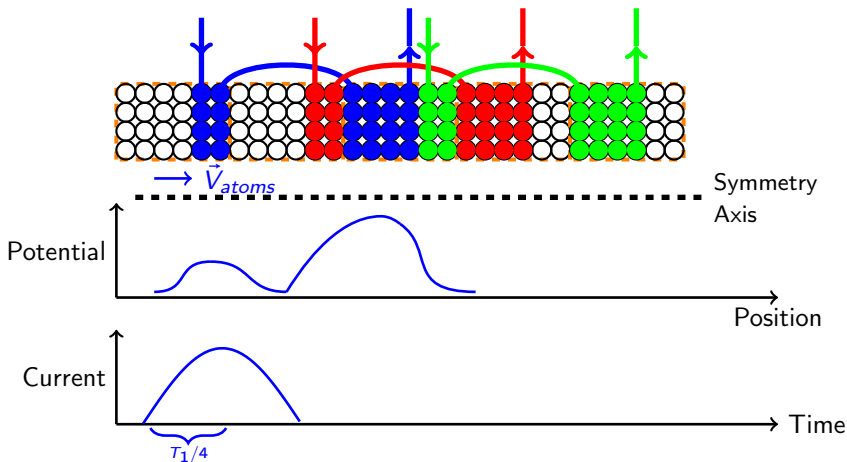
Field switching



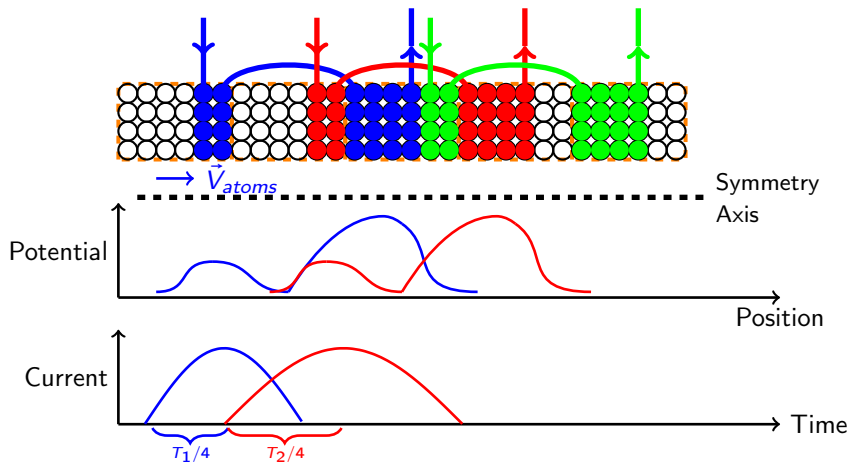
Field switching



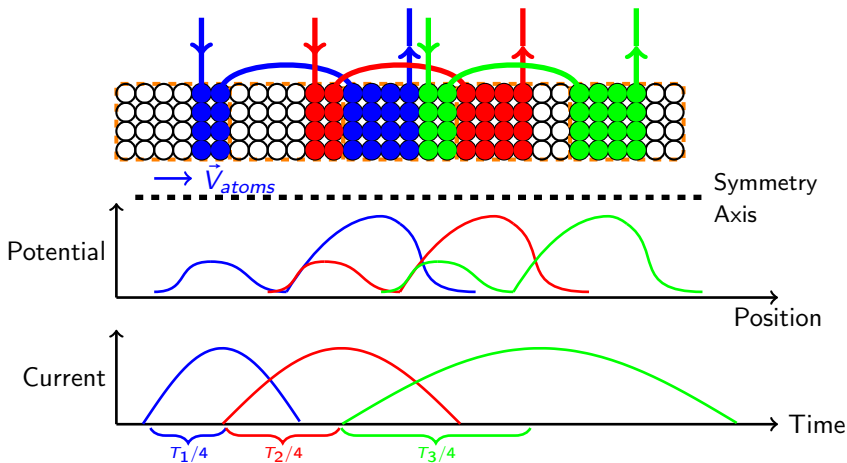
Field switching



Field switching



Field switching



Objective

Study the oscillation of magnetic field minimum during the transition

Method

Programming languages: C++, Python, Shell

- ▶ Construct coil geometry and location
- ▶ Generate time dependent current in coils
- ▶ Loop Through time for certain periods.
- ▶ At each time point, loop through traps and position, calculate field distribution.
- ▶ Search for field minimum point and return position and value
- ▶ Save data file into CSV
- ▶ Call python3 through Makefile to generate and save plots.