STC Mid-Project Review

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Thing have been done

- Constructed project github repository, built wiki page for general review of the project and guidline for group members. (`https://github.com/SuperYuLu/STC-2016`)

- Code main.cc to provide general guidline for the programming

- Constructed geometry setup of Anti-Helmholtz coil, as shown in figure 1

- Wrote function *calCurrent* for class *traps* to generate sine and trangle shaped current signal

- Wrote function *calField* for class *trap* to calculate the magnetic field generate by Anti-Helmholtz coils, based on the geometry setup and calculated current

- Wrote function *func_findFieldMax* and *func_findFieldMin* to find the magnetic field maxmium / minimium and corresponding position.

Things to be done

- Combine multiple functions into main program, test compatbility

- Run calculation to simulate the switching of nearby magnetic traps

- Vary Geometry, current pulse shape and activating time of each magnetic trap, compare and analyze the oscillation of field minimiun

- Try to find a optimized geometry, timing, pulse shape parameter to reduce the oscillation of the field minimium.

- Optimize the code, parallelize possible sections, analyze the code performance.

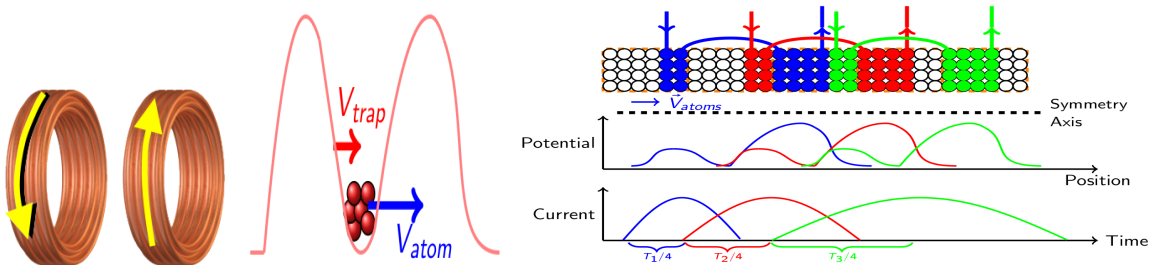- Prepare for report and presentation

Figure 1: (A) Anti-Helmholtz coil. (B) Atoms in the magnetic trap. (C) Schematic for generating co-moving magnetic trap