Week of 3/13/18

- ChoozSimulation
  - Got it working
  - Using Xming, root crashes when using TBrowser()
  - Will download tool Carolyn uses

- Geometry
  - Finished the geometry file, sent off to Kim, Carolyn, Oliver to look over
  - Check using Oliver's visualization tools

Last Semester

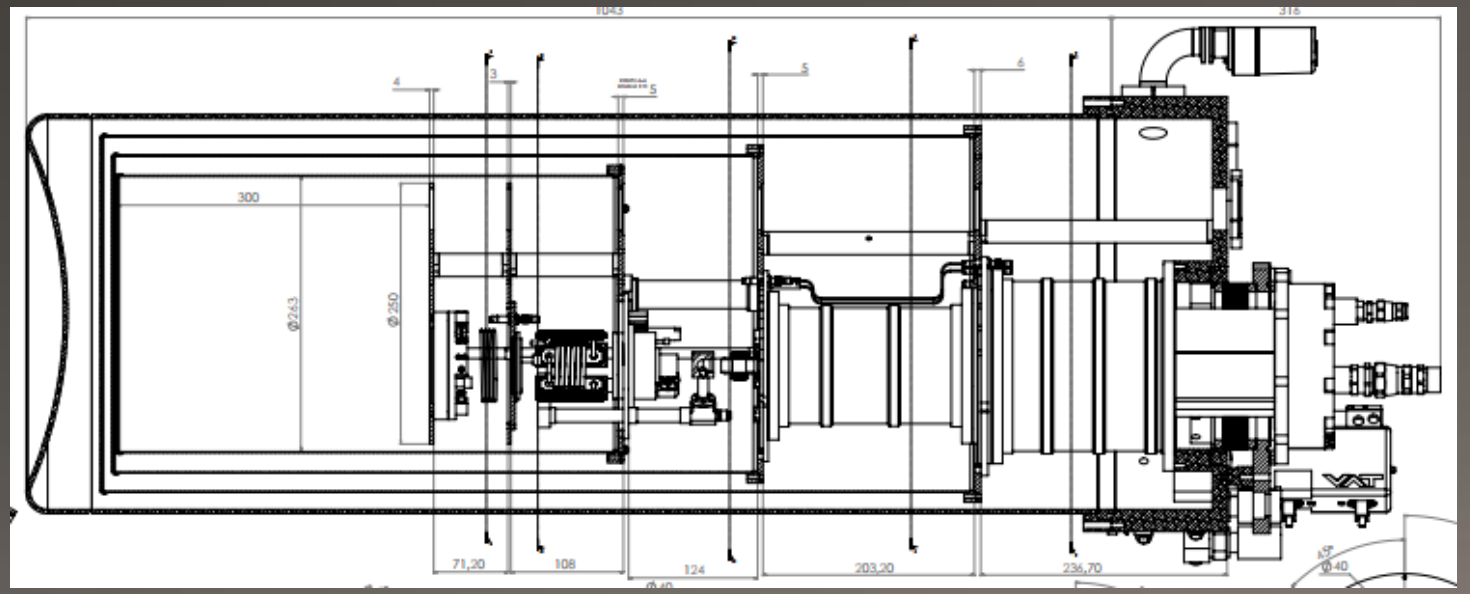
- ADR -> Dilution Refrigerator
  - Created a proposal for a new geometry for a dilution refrigerator
- ChoozSimulation
  - Install geant, root, ChoozSimulation
- Poster
  - Presented at the Women in Physics conference at Iowa State over break

Week of 11/15/2017

- ChoozSimulation
  - Ran into problem with change in login while it was running
  - Was able to get past the problem
  - “Exceeded Disk Quota” at make install
  - We need more space before we can install more
  - Still need to install…. (once we have space)
    - Geant
    - ChoozSim?

ADR -> Dilution Refrigerator

- Relative Geometry is giving me trouble
- Meeting with Oliver to go through and better understand
- Sizes are very different it seems (ADR about 34 cm by 30 cm where Dilution refrigerator is 2.2615 m by 1.15 m)

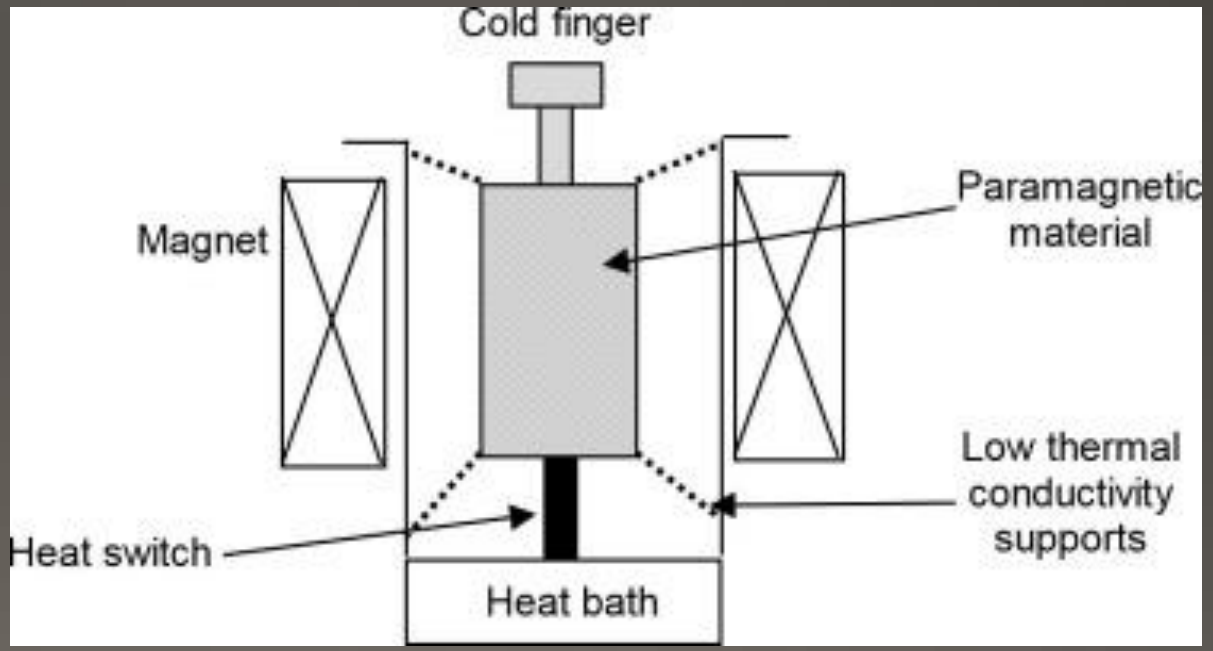


Week of 11/1/2017

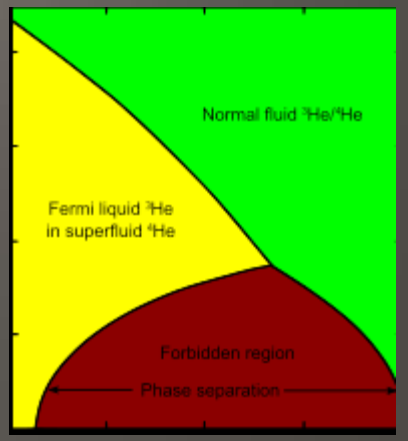
- ChoozSimulation
  - After many meetings…
  - It works
  - There would be a histogram for proof if I could login in to the right place

Refrigerators

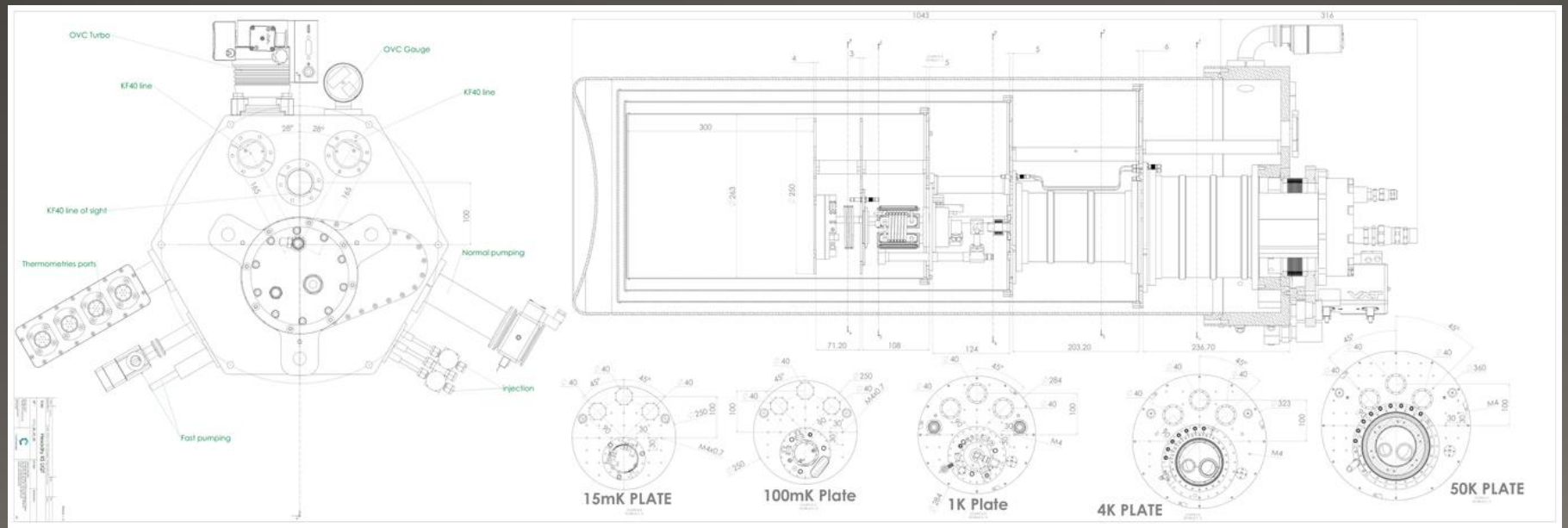
- ADR (Adiabatic Demagnetization Refrigerator)
  - Magnetic moment aligns with magnetic field
  - Strength of magnetic field ~ strength of alignment
  - Lowering the field slowly to cool
  - Control temp using control of the magnetic field strength



Refrigerators



- Dilution Refrigerator
  - .87 Kelvin, He^4 goes to He^3
  - First gets sent through a cooling section surrounded by liquid nitrogen
  - Through each chamber, pressure goes down, lowering the temperature
  - Can go very low (.002 K usually)



Week of 10/18/2017

- ChoozSimulation
  - Meeting with Dan Bradley tomorrow
  - Recompile ChoozSim

- Geometry files
  - Learning about ADR and Dilution Refrigerators
  - Drawing the Geometry to better visualize a transition

Week of 10/3/17

- Gone last week

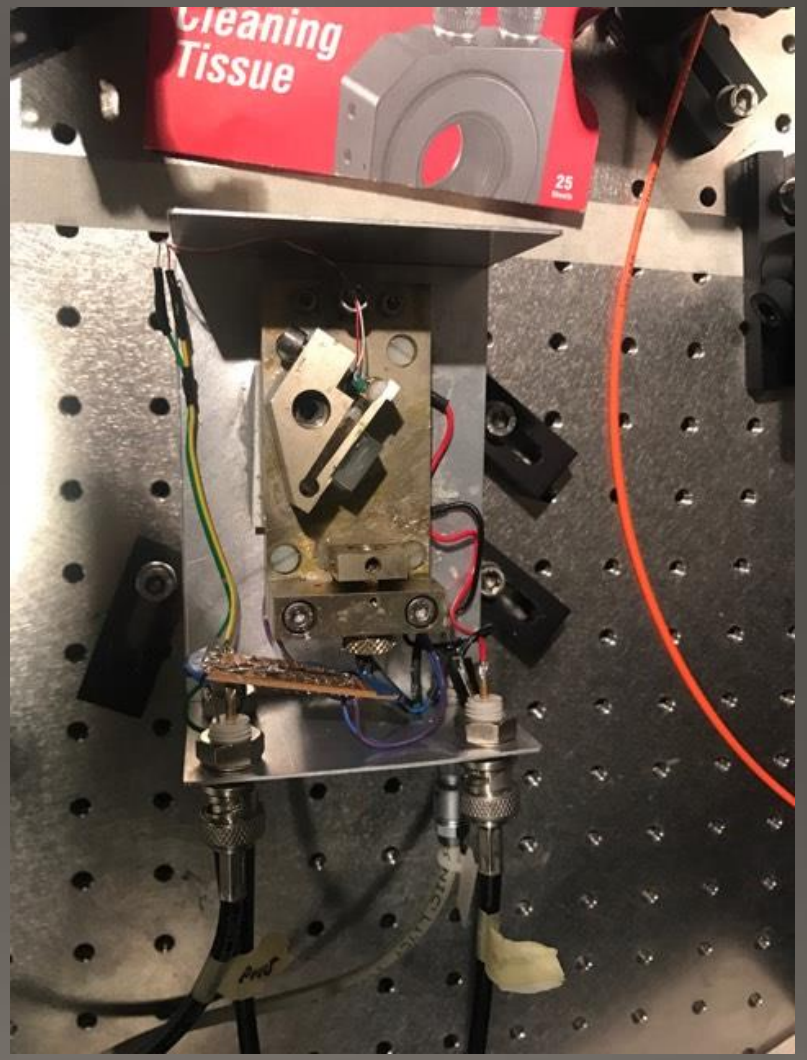
- RicochetChoozSim
  - Info from Carolyn
  - Get a segmentation fault
  - Learn about debugging program

Semester Goals Fall 2017

- Get ChoozSimulation working on our computers
- Replace the ADR with a dilution refrigerator in the geometry
- Run the backgrounds with the new geometry
- Run backgrounds finding an exponential rise at the threshold

Summer in Denmark

- Aarhus University
- Ion trapping
- Lasers
- Calculations for MgH+



Replacing the ADR

Outer Detector, [1 m, 4.25 m] x [3.2 m, 4.2 m]

Pb and Polyethylene, 4 cm and 10cm

Overall Project

I am working with Ricochet and will be doing simulations of the neutron background being received in the detector.

Week of 5/23

- Trouble with the unzipped ChoozSimulation
- Try to get git clone working with github.mit.edu to acquire the
- Getting help with our github.mit.edu problems
  - Talking to Alex and trying to figure out why it wasn't working
    - Lead to creating ssh keys that did not work
  - Call MIT help desk
    - So far they have been unable to help
    - Alex was able to get the github working on our computers, but through a vncserver, not through a ssh pipe

Spring Semester 2017

Started:

- We have moved closer to being able to do simulations in our new directories with our new code and the new information that comes with that.
- Over the summer Carolyn and Kim will move on, I will work with them for about 3 more weeks.

Learned:

- About linux and more about these simulations
- About Ricochet, what it is doing and some of the parts that go into building it.

Week of 5/2

Goals:

- Create an environment so that I can move forward with installing the ChoozSimulation code
- Get the installation finished off with hopefully no more problems.

Completed:

- Made an env.sh that seems to work and has brought me to the next part of the install of ChoozSimulation code.
- The testCfneutrons.mac works in the new (ratcage-040317) directory

Week of 4/25

Goals:

- Install the ChoozSimulation code into the new directory and build it
- Have the testCfneutrons.mac run in the old directory and new directory to make sure everything is working

Completed:

- The MATERIALS.ratdb is now as it should be and working
- Downloaded the ChoozSimulation after having trouble transferring it from github to the server

Week of 4/18

Goals:

- Install ChoozSimulation code into the new Ricochet directory and try and build it
- Fix typos in MATERIALS.ratdb

Completed:

- Transfer from old SPECTRUM.ratdb and adding additional elements to ELEMENTS.ratdb from old directory (ratcage) to new directory (ratcage-040317)

Week of 4/11

Goals:

- Transfer old spectrum, needed materials and elements over from old rat folder into the new rat folder, where the simulations will be done from now on.