Paired Project: “Planning your project”

Hey Danny,

Bradley and I have decided to expand upon our topic. The feedback you gave us from last week criticized our topic as to general or vague and in response to this we have come up with a more clear and concise topic and goals, subject to your approval of course. The topic we have chosen is the Meissner effect which was also the topic of my first term project paper. The Meissner effect however is a well-known phenomenon, the interest in the topic is the underlying mechanics and the causes of the Meissner effect. There is a lot of documentation on how the Meissner effects works in cylindrical superconductors, there is not however much investigation as to how the geometry of the superconductor changes the resulting field lines that make up the Meissner effect. We believe that changing the geometry of the object can lead to a change in the orientation of induced magnetic dipoles, directions of forces caused by cooper pairing, and overall directions and magnitude of electro-magnetic field lines.

We plan on breaking up the workload and setting goals as follows.

Week 1 (Next Monday the 27th) – Investigate sources and acquiring background information

We believe it pertinent to develop some general background knowledge into the topic that we are doing our project over. Since I have already done research into this topic Week 1 will consist mostly of Brad getting familiar with the Meissner effect and me searching for additional sources, particularly sources that pertain to unique superconducting objects.

Week 2 – mathematical principles of unique geometries in the Meissner effect

Week 2 we will begin an analysis of the mathematical formulas we will be working with using the Meissner effect. I have described the mathematics in my paper but as stated previously changing the shape of the conductor will most likely result in some change in how the E-M field lines propagate from the superconductor (If it doesn’t then we no longer have a project). Me and Brad will be working together to understand the mathematics as well as create our own and alter existing equations to support unique geometries.

Week 3 – Pseudo-code and understanding

In this week Bradley will be making up a pseudo-code that will be the frame working for our models of superconductors (Brad is better at coding than I). I will be developing our understanding more. By this I mean I will be analyzing our sources and previous work to determine conclusively what aspects of the Meissner effect will be changed by changing the shape of the superconductor.

Week 4 – Developing Models

This week will be dedicated to developing the models of our superconducting as well as developing an explanation as to the underlying mechanics of the models. Together we will analyze several different conductors and how E&M lines are interacting with them. These cases will become the models we will be displaying in our final project.

Week 5 – Putting it all together

Bradley will work diligently as I get a poster and glue sticks. More realistically we’ll come together and finish any coding that needs to be finished. We’ll post our results onto a poster board making it as aesthetically pleasing as possible.