Senior Design 491 - May1629 - Weekly Report 6

Advisor: Dr. Ravi Hadimani
Project: Development of "Triple Halo Coil" for Deep Transcranial Magnetic Stimulation
Client: Dr. Ravi Hadimani / Dr. David Jiles
Members: Wentai Wang
Aashwatth Agarwal
Dylan Jagger Rasmusson
Date: 10/12/2015

Summary

This week our task was to complete our SEMCADX software training by practicing “Figure of Eight” coil, and “Halo Coil”, and start working directly towards the simulation of “Triple Halo Coil”.

Group Meeting Notes

Continue working towards our individual assigned work.

Advisor Meeting Notes

In-depth discussion about the status of our training in the software, and guidance by Ms. Priyam, towards simulation of Triple Halo Coil.

Accomplishments

(by Aashwatth and Wentai)

- Completed our “Figure of Eight”- coil simulation, in SEMCAD X tool.
- Starting working towards Halo Coil simulation.
- Gained a better experience with SEMCAD simulation software by practicing two coil designs.
- Able to identify how different magnetic and electric fields corresponds to different head model, shape and position of the coils. This helped us realize a better understanding towards meeting our product specification.

(by Dylan)

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Plans for Next Week

- Start simulating actual “Triple Halo Coil”, by taking specifications, and measurement in account (Aashwatth,Wentai)
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Pending Issues

- Some of the material needs to be ordered.

Individual Hourly Contribution

(Dylan):

(Wentai Wang, Aashwatth Agarwal) :

We had our second training offered by Ms. Priyam. We learnt how to create spline coils required for constructing Triple Halo Coil in SEMCAD X tool , and also how to import Duke head model. For getting more in-hand practice on SEMCAD , we simulated Figure of 8 coil on Monday (October 12 2015). The difference between single coil and Figure of 8 coils is that Figure of 8 coils are created with two set of coils. Each set of coils will be comprised of 9 turns, with internal radius of 27.5 mm and external 47.5 mm, with the gap of 2.5 mm in each turn. The following magnetic and electric field could be viewed after running the simulation :

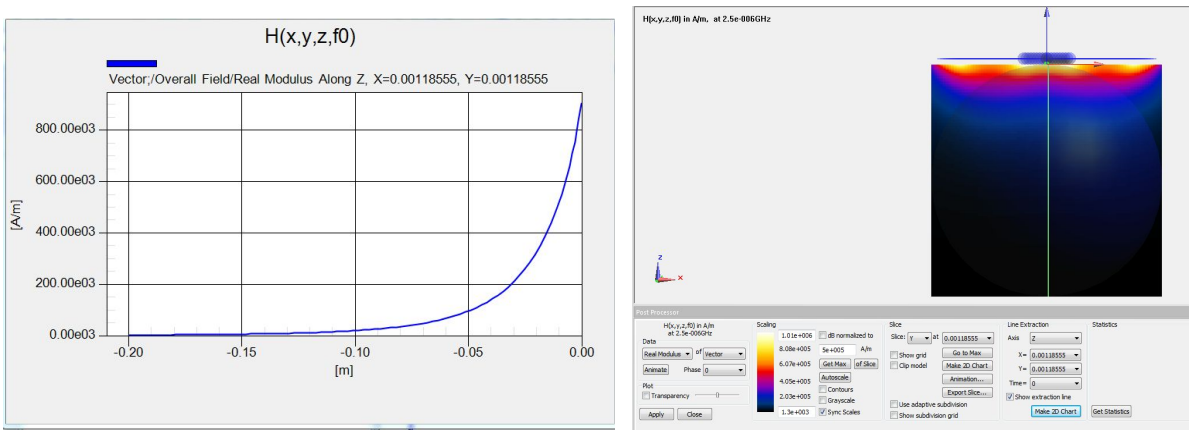

Figure1. Shows the magnetic field due to the “Figure of Eight” coil along the vertex of the head.

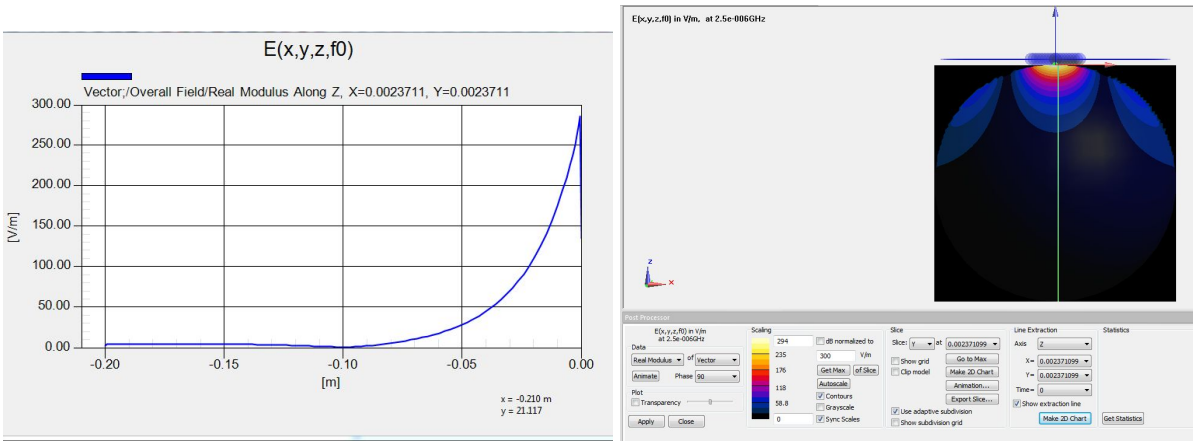

Figure2. Shows the induced electric field due to the "Figure of Eight" coil along the vertex of the head.

Name	***Hours this week***	***Work***
Wentai Wang	5.5	SemCAD simulation, Weekly Report
Aashwatth Agarwal	5.5	SemCAD simulation, Weekly Report
Dylan Rasmusson	5.5	