

Marsh White Report
Marquette University SPS

Project: Tesla Coil

Construction Status: Behind schedule

The SPS chapter of Marquette University has been eagerly looking forward to involving a high energy project into their "High Interest Days" for a while now which is why we successfully applied for funds to build a Tesla coil. Unfortunately we have been able to spend less time on the Tesla coil production than was previously expected and as a result we are behind our originally proposed schedule. We feel is not a huge problem at the moment because the local schools are out of session until the fall and we believe that we will be able to complete construction before school begins again. In addition, we have talked with our contacts at local elementary schools and they are looking forward to our upcoming demonstrations next school year.

We have fallen behind the proposed schedule because of many things: one being that we haven't put as much time into the project as we had originally planned, and another being that we have run into problems with actually winding the copper wire in the secondary coil. It turns out that the wire was not being wound tight enough. We fixed this problem by having one person guide the wire with 2 thin pieces of metal, 1 piece to keep it close to the rest of the wire and the other to flatten it. We had to have a second person turn the coil, we set up a box like system that pivots on the bolts we put into the top and bottom caps of the PVC pipe. A third person is necessary to turn the spool of copper wire so no snags occur. This means to make progress in winding the secondary coil we need to have three team members present at a time (when the shop is available), and we have had problems coordinating our busy schedules in turn slowing down our progress.

We also ran into a problem when designing the primary coil, we had to devise a way to coil a .5" tube around a central point and use 6 strips of PVC to hold them steady. We corrected this problem with precise planning and execution.

The Marsh White award has been invaluable to the construction of the coil and currently has been spent in full. Only a few more things need to be bought but we can either salvage those items, ask a local business to donate them or if all else fails our chapter or department will willing to finance the final purchases.

Over the summer we have been throwing around the idea of extending our "High Interest Days" to both middle and high school classes. Especially in the high school level, this could be very inspiring to young minds, and hopefully encourage them to look toward physics and the sciences as a possible future.

This is a break down of the Marsh White funds:

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|-----------------------|----------|-----------|----------|
| Budget | Starting | | \$300.00 |
| Item | Amount | Price/per | Total |
| Fiberglass | 1 | \$11.50 | \$11.50 |
| Copper Wire | 2 | \$11.22 | \$22.44 |
| Aluminum Tape | 1 | \$22.98 | \$22.98 |
| HD Polyethylene | 1 | \$15.87 | \$15.87 |
| Copper Tubing | 1 | \$31.13 | \$31.13 |
| Transformer 15KVx60mA | 1 | \$195.49 | \$195.49 |
| | | End | \$0.59 |