**Ion beam research**

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Originally, my research was suppose to be recreating rutherford's experiment, by blasting helium particles into gold foil in order to try to create a biosensor. This project was suppose to take a short amount of time, and so we planned start this project near the third or fourth week. In the meanwhile, I was to shadow the other phd students in their own experiments. One of the phd students (Emmanuel Epie) was studying the optical properties of a quartz sample implemented with gold. The ideas of merging two different elements of different properties without a chemical reaction amazed me. As such, I began to wonder about the properties of this “merged” element. It was obvious that the optics of the sample were changed, but I also wondered about the other properties as well. Around 2 weeks in, the machines in the lab began malfunctioning. In the between times of repairing the machines, I asked my professor if I could change my experiment, since the machinery wasn’t working. I decided to do research on one of the first questions I came upon, the conductive properties of merged elements. Since the equipment wasn’t available, I used one of Dr. Buddhi’s old samples, silicon oxide (glass) implemented with copper, that he used for optical studies. My goal of this experiment was to see if by using ion implantation, I could create a sample that has the structural properties of silicon oxide along with the conductive properties of copper. My research is still ongoing, and I am planning on coming back after the internship ends in order to finalize my results.