Introductions
• Review of the last meeting

Research: Magnetic Force Microscopy of LSMO/ Nb:STO
• Research Purpose
  o AFM/MFM (Atomic Force Microscope /Magnetic Force Microscope) is furthering the field of data storage
    ▪ The more magnetic domain = the more storage. Therefore, we want an ordered pair of magnetic polarities to be able to store more information
• Process
  o A laser scans are done in two steps the surface of a material in two steps
    ▪ The first scan is done by touching the tip of the MFM to the surface of the sample. → Along the entire surface
      • This produces a topographical map
    ▪ Then the same pattern is produced with the sample removed
      • This allows us to obtain the magnetic interaction
• Samples
  o Geometric Squares
    ▪ Changing the polarization of the magnets changes the vortex
  o Geometric diamonds
    ▪ A 45-degree rotation did not produce the same results at the geometric squares
  o Circles
    ▪ A happy accident was found when the MFM was conducted but needs to be looked into further
• Key findings
  o If an interruption in the material is introduced (ex. A hole), then two separate polarization characteristics are observed.
• Future work
  o Characterization of a circular material instead of a square
  o Obtaining a more accurate tip in order to better characterize circles
Bridge to Doctorate Meeting Minutes
September 9th, 2019

Activity:
- Lab Notebook (what to include?) Group Discussion
  - Start time, machine used, end time, what when right, what went wrong
  - Leave blank pages for results
  - Date, organizing ideas, data, formula, calculations, next steps, signature

Announcements
- BD Meetings switched to every other Friday from 2:00 PM – 3:00 PM
- Next meeting will be run by Mr. Godwin Dzidotor on September 20th

Attendees:
Pierre Fils
Victor Calle
Roman Mays
Luis Antonio
Jaseph Soto Perez
I’Jaaz Muhammad
Aida Ghiaei