Bridge to Doctorate Meeting Minutes
September 9th, 2019

Facilitator: Luis Ortiz, Aida Ghiaei

Minute Taker: Pierre Dens Fils

Duration: 2:00 pm – 3:00 pm.

Location: Castleman 336

Introductions
- Review of the last meeting

Research: Magnetic Force Microscopy of LSMO/ Nb:STO
- Research Purpose
  - 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
  - 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
  - Geometric Squares
    - Changing the polarization of the magnets changes the vortex
  - Geometric diamonds
    - A 45-degree rotation did not produce the same results at the geometric squares
  - Circles
    - A happy accident was found when the MFM was conducted but needs to be looked into further
- Key findings
  - If an interruption in the material is introduced (ex. A hole), then two separate polarization characteristics are observed.
- Future work
  - Characterization of a circular material instead of a square
  - Obtaining a more accurate tip in order to better characterize circles

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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