MATERIALS ENGINEERING

SEMINAR

"The Effect of Microstructure on the Magnetic Properties of Cobalt and $CoFe_2O_4$"

By

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ABSTRACT

Magnetic materials are used for a variety of applications in everyday life from hard drives to generators, but to improve upon them, a fundamental understanding of how the microstructure affects the magnetic properties is necessary. Research into this field has steadily been gaining interest since the 1950's and will continue to hold scientists' interest as improvements in every magnetic application can still be improved. Two popular magnetic materials are cobalt ferrite ($CoFe_2O_4$) and cobalt, both of which are ferromagnetic at room temperature for the bulk. Three different microstructures: single material thin films, multilayer films, and vertically aligned nanocomposites are analyzed. Each microstructure allows for different applications when compared with each other. Both $CoFe_2O_4$ and cobalt will be analyzed for each microstructure. Challenges related to the fields of the nanostructured magnetic structures are presented and possible future research directions are proposed. Some of the preliminary data related will be presented at the end.

Date: Monday, December 12, 2022
Time: 9:00am
Place: ARMS 1028 or via WebEx https://purdue.webex.com/meet/hwang00

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