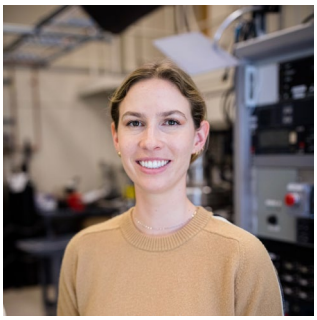
NCNR SEMINAR: NOVEMBER 13, 2023. 10:45 AM (EST)

Static and dynamic magnetics in rare-earth iron garnets



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Rare earth iron garnets (REIGs) are complex ferrimagnetic oxides known for their tunable magnetic properties. Coercivity, saturation magnetization, perpendicular magnetic anisotropy, temperature dependence, and Gilbert damping are just a few characteristics that can be altered via elemental substitution, strain, or growth conditions. These adjustable features make REIGs a leading material in spintronics devices, magnetic counterparts to traditional CMOS information storage and processing. In this talk, I will explain the magnetic benefits of REIGs and their promise in spintronics applications. In addition, their temperature dependent magnetic behavior will be discussed, including a python program I developed to model these complex materials. Then I will dive into their magnetization dynamics, specifically how magnons and domain walls interact to enable magnon-driven translation of domain walls in BiYIG, with the potential for high-speed memory or logic device designs. Throughout this talk, I will discuss challenges that emerged during these projects and the creative solutions we built or understandings we developed as a result. This project is funded through NSF.

Speaker Biography

I am in the 4th year of my PhD in the electrical engineering and computer science department at MIT. Prior to MIT, I completed my bachelors in physics at UC Berkeley in 2020. I am originally from San Diego, CA and yes, I do surf and enjoy the beach. But in my free time you'll find me riding horses or doing yoga along the Charles River.

Monday, November 13, 2023
10:45 AM (UTC-05:00) Eastern Time (US & Canada) | Hybrid format
Attend in person (room K04B, NCNR) if you have access to the NIST campus, or remotely using the link below. NCNR access is not required.

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