BETR Solid State Technology and Devices Seminar

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Acoustically Driven Ferromagnetic Resonance: Quantum Sensing in a Low SWaP-C package

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Abstract: Despite promising and impactful use cases in diverse fields such as physiological monitoring, brain computer interfaces, and electrically small antennas, commercial applications of high performance magnetometry have been restricted to relatively niche fields such as medical diagnostics and oil & gas surveying. Use cases for high performance magnetometry are limited by the size, weight, power, and cost (SWaP-C) of existing quantum magnetometers: improvement on these SWaP-C metrics would enable a dramatic expansion of commercially viable applications for magnetic sensing technologies. In this talk, I will discuss the principles of a novel magnetic sensing approach leveraging Acoustically Driven Ferromagnetic Resonance (ADFMR), and its capability to enable high-performance magnetometry for applications with restrictive SWaP-C requirements.

Bio: Dr. Dominic Labanowski is co-founder and CTO of Sonera, an early-stage startup aiming to advance our understanding of the human mind by developing high-performance commercially viable brain-computer interfaces. He leads efforts to develop the company's sensing technology, with potential to advance multiple industries - including personal computing, healthcare, and defense. Previously, he earned a Ph.D. in Electrical Engineering and Computer Sciences from Sayeef Salahuddin's group at the University of California, Berkeley, where he was supported by the National Defense Science and Engineering Graduate Fellowship and a State of California Research Fellowship. Labanowski also holds a B.S. in Electrical and Computer Engineering from The Ohio State University, where he was a Goldwater scholar.