Dr. Steven Louis

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Magnetic tunnel junctions as nanoscale artificial neurons

Artificial spiking neurons are the primary building blocks in a new class of neuromorphic computer hardware, for example, Intel's Loihi. Spiking spintronic neurons hold promise to transform conventional computer architectures for increased processing speed and computational efficiency in machine learning tasks. This talk will show that magnetic tunnel junctions have the capacity to behave as spiking neurons, and that magnetic tunnel junctions can have a characteristic behavior that is similar to biological neurons.

Short Bio

Steven Louis has a faculty teaching position in the Department of Electrical and Computer Engineering at Oakland University. He received his PhD in Electrical Engineering in 2020 from Oakland University, an MS in Physics in 2015 from Oakland University, and a BS in Electrical Engineering in 1998 from Arizona State University. Prior to graduate school, he worked in telecommunications, biomedical research, and corporate finance for nearly 15 years.