

Talk Abstract:

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. In this talk, it will be demonstrated that, in principle, both antiferromagnetic junctions and spin torque nano oscillators have the capability to behave as spiking neurons. It also will show that they are suitable for use in neural networks for machine learning.

Short Bio:

Steven Louis is a member of the Institute for Spintronics and Microwave Technology at Oakland University, and conducts research focused on developing practical applications for spintronic technology. He 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, a MS in Physics in 2015, and a BS in Electrical Engineering in 1998. Prior to graduate school, he worked in telecommunications, biomedical research, and corporate finance for nearly 15 years.