1145-55-1913   **Justin Mauger***, jmauger@spawar.navy.mil. *Characterization of Radar Signals via Topological Data Analysis and Spiking Neuron Networks.*

The use of Topological Data Analysis (TDA) in data science has become commonplace today. TDA views data as points in a high dimensional vector space and calculates *persistent homology* to differentiate between transient and persistent features at different scales. It is actively used in neuroscience to find patterns in timing dependencies between different neurons' spikes.

In addition to TDA, Artificial Neural Networks and Convolutional Neural Networks have garnered much attention recently due to their success in classification tasks. A Spiking Neuron Network is an alternative approach that more closely mimics the way the brain processes information, namely, through time-dependent spikes. We use a combination of Spiking Neuron Networks and Topological Data Analysis to characterize radar signals from different emitters. (Received September 24, 2018)