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Gary R. Engler*, Department of Mathematical Sciences, Stevens Institute of Technology, Hoboken, NJ 07030, and **Kenneth R. Blaney**. *A Network-Induced Multi-Neuronal Spike Train Metric*. Preliminary report.

The activity of a network of neurons can be characterized by the timing of individual spikes for each neuron in the network. These spikes represent the time that a communication signal is generated and subsequently sent to other neurons. A metric which encodes the relationships within networks of artificial spiking neurons is introduced in this talk and applications to optimization of network structure of this metric and the associated metric space are discussed. Learning has been shown to be correlated to the altering of edge weights in the underlying network. The applications of the metric on a network while learning is taking place is discussed as a method to measure the effects of the active learning algorithm on the activity of the network. (Received September 20, 2016)