

1135-VN-2598      **Kathryn A. Lokken\*** (klokken@uwm.edu). *The Firing Squad Synchronization Problem.*

Cellular automata provide a simple environment in which to study global behaviors. One example of a problem that utilizes cellular automata is the Firing Squad Synchronization Problem, first proposed in 1957. This talk provides an overview of the standard Firing Squad Synchronization Problem, including descriptions of some techniques used in solutions that are known to the problem. Known properties about the problem, such as existing lower bounds to the number of states required in a minimal time solution to the problem are discussed. Current work being done as well as possibilities of future work are discussed, including, but not limited to, work to produce a formal proof of the non-existence of a 4 state solution, constructing a 5 state minimal time solution or proving the non-existence of such a solution, and examining a new variant of the problem where a different type of local neighborhood for the cellular automata is considered. (Received September 26, 2017)