

1154-92-2525      **Andrea Arnold\*** ([anarnold@wpi.edu](mailto:anarnold@wpi.edu)). *Analyzing Uncertainty in Time-Varying Parameter Estimates for Biological Systems.*

Estimating and quantifying uncertainty in system parameters remains a big challenge in many biological applications. In particular, many biological systems involve parameters that are known to vary with time but have unknown dynamics and cannot be measured. Examples include the seasonal transmission parameter in modeling the spread of infectious diseases and the external voltage in modeling the spiking dynamics of neurons. This talk will address aspects of uncertainty in sequential Monte Carlo nonlinear filtering estimates of time-varying parameters, with particular emphasis on how uncertainty in the parameter estimates affects the corresponding model output predictions. Results will be demonstrated on biological applications. (Received September 17, 2019)