1136-92-118 **Marissa Renardy*** (renardy.1@osu.edu), **Tau-Mu Yi**, **Dongbin Xiu** and **Ching-Shan Chou**. *Parameter uncertainty quantification using surrogate models applied to a spatial model of yeast mating polarization.*

A common challenge in systems biology is quantifying the effects of unknown parameters and estimating parameter values from data. For many systems, this task is computationally intractable due to expensive model evaluations and large numbers of parameters. In this work, we investigate a new method for performing sensitivity analysis and parameter estimation of complex biological models using techniques from uncertainty quantification. The primary advance is a dramatic improvement in computational efficiency from the replacement of model simulation by evaluation of a polynomial surrogate model. We demonstrate the method on two models of mating in budding yeast: a small ODE model of the heterotrimeric G-protein cycle, and a large spatial model of pheromone-induced cell polarization. (Received January 07, 2018)