1116-00-209 **Rachel Kuske***, rachel@math.ubc.ca. *Stochastic facilitation and sensitivities in discontinuous dynamics.*

While there have been recent advances for analyzing the complex deterministic behavior of systems with discontinuous dynamics, there are many open questions around understanding and predicting noise-driven and noise-sensitive phenomena in the non-smooth context. Familiar concepts from smooth systems such as escapes, resonances, and bifurcations appear in unexpected forms for non-smooth systems, so that effective analyses typically depend on the creative combination of multiple scales techniques, probabilistic models, and nonlinear methods. The appropriate strategy is often not immediately obvious from the area of application or model type, yet we gain intuition from seemingly unrelated canonical models of biophysics, mechanics, and chemical dynamics. Combining the geometrical perspective with asymptotic approaches in physical and phase space is critical for characterizing the stochastic dynamics, robustness, and sensitivity to noisy fluctuations. Models in biology, engineering, and the environment are discussed. (Received August 14, 2015)