

1107-60-53

Chia Ying Lee* (lchiaying@math.ubc.ca), **Rachel Kuske** and **Vivi Rottschafer**. *Pattern formation in the stochastic Swift-Hohenberg equation with delay.*

The Swift-Hohenberg equation is a model equation for studying pattern formation in dynamical systems. It is known that solutions near the Turing bifurcation point are well approximated by a dominant mode with a slowly varying amplitude. In the presence of noise and delayed feedback, we show how the formation and stability of the patterns may be affected, depending on the delay parameters and the strength of the noise. In the regime of Turing bifurcations, the delay causes multiple time scales to develop. Specifically, at near-critical delay parameters without noise, small perturbations exhibit oscillations on one slow time scale and damping on another slower time scale. With noise, this frequency of oscillations are being excited and sustained rather than damped. (Received December 17, 2014)