1125-92-1870 **Scott W Greenhalgh*** (scott.greenhalgh@queensu.ca), Department of Math & Stats, Jeffery Hall, University Ave., Kingston, Ontario K7L 3N8, Canada, and **Troy Day**, Department of Math & Stats, Jeffery Hall, University Ave., Kingston, Ontario K7L 3N8, Canada. *Recovery rates in epidemiological models.*

Constant recovery rates do not perfectly describe the dynamics of recovery. However, despite the many theoretical extensions that differential equation models of infectious disease have undergone, the generalization of recovery rates to physically more realistic formulations have only recently started to be developed.

In this talk, we provide a first principle derivation of state-dependent and time varying recovery rates in differential equation models of infectious disease. We justify our derivation through the connection between integral equations, differential equations, and stochastic processes. Finally, we apply our approach using measles transmission in Iceland, where we demonstrate the potential impact that uncertainty in an infectious period distribution's skewness and kurtosis has on predicting epidemic peaks. (Received September 19, 2016)