

## **Xiaowen Zhou, Concordia University**

*On the survival-extinction behavior for a class of continuous state branching processes with nonlinear branching rates*

### **Abstract**

In this talk we consider nonnegative solutions to a class of stochastic differential equations driven by both a Brownian motion and a compensated Poisson random measure. Such a solution can be interpreted as a continuous state branching process with competition and with branching rate depending on the current population size. We identify sufficient conditions on the branching and competition parameters under which the process either dies out with probability one or survives with probability one. The talk is based on joint work with Peisen Li and Xu Yang.