1133-60-296 **Sandun Perera** and **Hongwei Long*** (hlong@fau.edu), Department of Mathematical Sciences, Florida Atlantic University, Boca Raton, FL 33431. *An Approximation Scheme for Impulse Control with Random Reaction Periods.*

We propose an approximation scheme for impulse control models when the controller's action affects the state as well as the dynamics of the state process for a random amount of time. In particular, we show that the optimal solutions of the impulse control model with random reaction periods(ICRRP)can be found by solving a sequence of optimal stopping problems when the number of interventions in the original model is finite. Hence, our work enhances viability of the existing ICRRP framework for applications as well as the general literature on stochastic control theory. The efficacy of our approximation scheme is validated by applying it to compute a market-reaction-adjusted optimal central bank intervention policy for a country. (Received July 30, 2017)