



The University of Chicago  
Department of Statistics

Master's Seminar

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**How to Detect Source of Economic Change, Structure or State?**

**THURSDAY, November 9, 2006 at 1:00 PM**  
**110 Eckhart Hall, 5734 S. University Avenue**

### **ABSTRACT**

In this paper, I apply a direct and exact method in order to detect where economic change originates. I use an exact particle simulation method of Johannes, Polson and Yae (2006). They developed the optimal nonlinear robust lter, which can also deal with sequential parameter learning in non-normal state space models. To show why this method has an advantage in analyzing real data sets, I present this part of result from Johannes, Polson and Yae (2006). This method is compared to existing robust ltering algorithms, which include Stuck (1978), West (1981), Le, Raftery and Martin (1996), and Gordon and Smith (1993). Based on the result of Johannes, Polson and Yae (2006), I implement two applications. First, I check how the robust particle lter can detect parameter change in simulated data. Then, I investigate whether parameter change is a main source of economic change in the Korean stock market after the 90's Exchange Crisis by using a non-normal multivariate state space model.