



The University of Chicago  
Department of Statistics

Seminars for Fourth Year Ph.D. Students

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Department of Statistics  
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**Robustness of Volatility Estimators**

**WEDNESDAY, October 18, 2006 at 4:30 pm**  
**110 Eckhart Hall, 5734 S. University Avenue**

**ABSTRACT**

We consider microstructure as an arbitrary contamination of the underlying latent securities price, through a Markov kernel  $Q$ . Special cases include additive error, rounding, and combinations thereof. Our main result is that, subject to smoothness conditions, the two scales realized volatility (TSRV) is robust to the form of contamination  $Q$ . To push the limits of our result, we show what happens for some models involving rounding (which is not, of course, smooth) and see in this situation how the robustness deteriorates with decreasing smoothness. Our conclusion is that under reasonable smoothness, one does not need to consider too closely how the microstructure is formed, while if severe non-smoothness is suspected, one needs to pay attention to the precise structure and also to what use the estimator of volatility will be put.