

# COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS  
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## **SECOND-ORDER SUFFICIENT CONDITIONS FOR QUADRATIC GROWTH CONDITION WITH APPLICATIONS TO STABLE RECOVERY**

### **Abstract**

Quadratic growth condition has been used extensively in recent developments of algorithms to guarantee fast convergence and stable performance. However, checking this property is a difficult task, usually proceeded case-by-case. In this presentation, unified second-order necessary and sufficient conditions for quadratic growth condition are provided. Our main application is to stable signal and image recovery, at which we study the theoretical guarantees of  $\ell^1$  and  $\ell^{1,2}$  analysis regularization such as discrete total variation and fused Lasso when solving sparse linear inverse problems.

**Tuesday, November 12, 2019**  
**12:00 – 12:50 P.M.**  
**372 Mathematics and Science Center (MSC)**

(Refreshments at 11:30-12:00 PM in the kitchen area adjacent to 368 MSC)