



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics  
**STATISTICS COLLOQUIUM**

*Joint seminar with Stevanovich Center*

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**The Statistical Price to Pay for Computational  
Efficiency in Sparse PCA**

**THURSDAY, April 17, 2014, at 12:00 PM**

Room 112, 5727 S. University Avenue

**ABSTRACT**

Computational limitations of statistical problems have largely been ignored or simply overcome by ad hoc relaxations techniques. If optimal methods cannot be computed in reasonable time, what is the best possible statistical performance of a computationally efficient procedure? Building on average case reductions, we establish these fundamental limits in the context of sparse principal component analysis and quantify the statistical price to pay for computational efficiency. Our results can be viewed as complexity theoretic lower bounds conditionally on the assumptions that some instances of the planted clique problem cannot be solved in randomized polynomial time. [Joint work with Quentin Berthet]

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For further information and inquiries about building access for persons with disabilities, please contact Kirsten Wellman at 773.702.8333 or send her an email at [kwellman@galton.uchicago.edu](mailto:kwellman@galton.uchicago.edu). If you wish to subscribe to our email list, please visit the following website: <https://lists.uchicago.edu/web/arc/statseminars>.