



De: CRM crm@crm.umontreal.ca  
Objet: **\*\*AUJOURD'HUI\*\*** : CSMQ : Emmanuel Candès  
Date: 30 octobre 2015 10:25  
À: activites@CRM.UMontreal.CA

**CHANGEMENT DE SALLE**  
**CHANGEMENT DE SALLE**  
**CHANGEMENT DE SALLE**

\*\*\*\*\*

COLLOQUE DES SCIENCES MATHÉMATIQUES DU QUÉBEC - Montréal  
<http://www.crm.umontreal.ca/Colloques/index.html>

\*\*\*\*\*

DATE :  
Le vendredi 30 octobre 2015 / Friday, October 30, 2015

HEURE / TIME :  
16 h / 4:00 p.m.

CONFÉRENCIER(S) / SPEAKER(S) :  
Emmanuel Candès (Stanford University)

TITRE / TITLE :  
A knockoff filter for controlling the false discovery rate

LIEU / PLACE :  
CRM, UdeM, Pav. André-Aisenstadt, 2920, ch. de la Tour, **\*\*salle 1360\*\***

RESUME / ABSTRACT :  
The big data era has created a new scientific paradigm: collect data first, ask questions later. Imagine that we observe a response variable together with a large number of potential explanatory variables, and would like to be able to discover which variables are truly associated with the response. At the same time, we need to know that the false discovery rate (FDR)---the expected fraction of false discoveries among all discoveries---is not too high, in order to assure the scientist that most of the discoveries are indeed true and replicable. We introduce the knockoff filter, a new variable selection procedure controlling the FDR in the statistical linear model whenever there are at least as many observations as variables. This method works by constructing fake variables, knockoffs, which can then be used as controls for the true variables; the method achieves exact FDR control in finite sample settings no matter the design or covariates, the number of variables in the model, and the amplitudes of the unknown regression coefficients, and does not require any knowledge of the noise level. This is joint work with Rina Foygel Barber.

\*\*\*\*\*

Responsable(s) :  
Yvan Saint-Aubin ([yvan.saint-aubin@umontreal.ca](mailto:yvan.saint-aubin@umontreal.ca))  
Iosif Polterovich ([iosif.polterovich@umontreal.ca](mailto:iosif.polterovich@umontreal.ca))  
Henri Darmon ([darmon@math.mcgill.ca](mailto:darmon@math.mcgill.ca))  
David A. Stephens ([dstephens@math.mcgill.ca](mailto:dstephens@math.mcgill.ca))