

**RYERSON UNIVERSITY**  
**DEPARTMENT OF MATHEMATICS**  
**GRAPHS AT RYERSON (G@R) SEMINAR**

**Dr. Michael Molloy**

Department of Computer Science, University of Toronto

Date: Thursday, October 20, 2016  
Time: 10am  
Location: ENG 210

## **Entropy Compression and the Lovasz Local Lemma**

**Abstract:** The Lovasz Local Lemma, a cornerstone of the probabilistic method, is a powerful and widely used proof technique. In 2009, Moser introduced a technique called entropy compression to provide efficient algorithms which construct objects that the Local Lemma guarantees to exist. Recently, entropy compression has been used to develop more powerful versions of the Local Lemma which provide existence proofs in settings where the original Local Lemma does not apply.

In this talk, I will illustrate this technique with applications to graph colouring: (a) colouring triangle-free graphs, and (b) frugal colouring, where no colour can appear too many times in any neighbourhood.

ALL FACULTY, STAFF, STUDENTS AND GUESTS ARE WELCOME TO ATTEND