

COLLOQUIUM  
UNIVERSITY OF PITTSBURGH  
THURSDAY, JANUARY 25, 2007  
704 THACKERAY HALL  
3:00 P.M.

**SPEAKER: PROFESSOR PETER KEEVASH\***

**DEPARTMENT OF MATHEMATICS  
CALIFORNIA INSTITUTE OF TECHNOLOGY**

**TITLE: THE HYPERGRAPH TURAN PROBLEM**

**ABSTRACT:** A central problem of extremal combinatorics is to determine the Turan number of a given  $r$ -uniform hypergraph  $F$ , i.e. the maximum number of edges in an  $r$ -uniform hypergraph on  $n$  vertices that does not contain a copy of  $F$ . Since the problem was introduced over sixty years ago, it has only been solved for relatively few hypergraphs  $F$ . Many of these results were found very recently by means of the stability method, which has brought new life to research in a challenging area. However, this method only has the potential to solve the problem when the extremal configuration is unique, so in other cases we need new techniques. In this talk we will discuss the history of Turan problems for graphs and hypergraphs, the methods that have been successfully used by various authors, and challenges for future research in the area.

**Refreshments served at 2:30 p.m.  
in the Math Dept. COMMON ROOM, Thackeray 705**

\*The speaker is a candidate for a position in the Department.