Combinatorics Seminar

Wednesday Sept 16th, 2015
2:30 PM-3:30 PM in Hume 331

Additive bases in groups

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ABSTRACT
Let $\mathbb{N}$ be the set of all nonnegative integers. A set $A \subset \mathbb{N}$ is called a basis of $\mathbb{N}$ if every sufficiently large integer is a sum of h elements from A, for some h. The smallest such h is called the order of A. For example, the squares form a basis of order 4 and the primes conjecturally form a basis of order 3 of $\mathbb{N}$. Erdos and Graham asked the following questions. If A is a basis of $\mathbb{N}$ and $a \in A$, when is $A \setminus \{a\}$ still a basis? It turns out that this is the case for all $a \in A$ with a finite number of exceptions. If $A \setminus \{a\}$ is still a basis, what can we say about its order? These questions and related questions have been extensively studied. In this talk, we address these questions in the more general setting of an abelian group in place of $\mathbb{N}$. This is joint work with Victor Lambert and Alain Plagne.