SMALL SUMSET ALONG A GRAPH

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L01 Carson Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

We walk around the seemingly innocent result, that if A and B are finite sets of integers (or vectors or elements of a torsion free commutative group), G is a "large" subset of pairs (a, b) from $A \times B$, but the sums $a + b : (a, b) \in G$ define only a few different elements, then there are "large" subsets $A' \subset A$, $B' \subset B$ such that ALL of their sums $a + b : a \in A', b \in B'$ define only a few different elements.

The discussion of several applications will show the importance of this result. We also indicate the main steps of a simple, elegant, completely elementary proof. No special prerequisite is needed.

This talk should be accessible to undergraduates.