Stability and sparsity in sets of natural numbers

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Abstract

The additive group of integers is a well-studied example of a stable group, whose definable sets can be easily and explicitly described. However, until recently, very little has been known about stable expansions of this group. In this talk, we examine the relationship between model-theoretic stability of expansions of the form $(\mathbb{Z}, +, 0, A)$, where A is a subset of the natural numbers, and the number theoretic behavior of A with respect to asymptotic structure and density of sumsets.