An Extremal Problem in the study of Zero-Sum Problems

Abstract

For a finite abelian group G with $|G| = n$, the arithmetical invariant $E_A(G)$ is defined to be the least integer k such that any sequence S with length k of elements in G has a A weighted zero-sum subsequence of length n. When $A = \{1\}$, it is *the Erdős-Ginzburg-Ziv constant* and is denoted by $E(G)$. Similarly, the Davenport Constant $D_A(G)$ is defined to be the least integer k such that any sequence S with length k of elements in G has a non-empty A weighted zero-sum subsequence. For certain sets A, we already know some general bounds for these weighted constants corresponding to the cyclic group $\mathbb{Z}_n$. We try to find out bounds for these combinatorial invariants for random A. We got few results in this connection. In this talk I would like to present those results and discuss about an extremal problem related to the cardinality of A.