

# Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, January 30@ STV 120

Speaker: Papa A. Sissokho, Illinois State University

## Zero-sum-free tuples

Let  $n$  and  $d$  be fixed positive integers with  $n > d$ . A  $d$ -tuple  $(v_1, v_2, \dots, v_d)$  in  $\mathbb{Z}_n^d$  is said to be zero-sum free if for any nonempty subset  $S \subseteq \{1, \dots, d\}$ , the sum  $\sum_{i \in S} v_i$  is nonzero modulo  $n$ . Let  $G(n, d)$  denote the set of all such tuples and let  $g(n, d)$  denote its cardinality. The problem of determining  $g(n, d)$  has interesting connections to areas such as Discrete Mathematics, Number Theory, and Algebra (Mathieu-Zhao subspaces). In this talk, I will discuss some of the recent results Sunil and I obtained on this problem.

This is joint work with Sunil Chebolu.

