

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, September 9

Speaker: Zhanar Berikkyzy, Fairfield University

Rainbow solutions to the Sidon equation in cyclic groups and in the interval

Given a coloring of group elements, a rainbow solution to an equation is a solution whose every element is assigned a different color. The rainbow number of \mathbb{Z}_n for an equation eq , denoted $rb(\mathbb{Z}_n, eq)$, is the smallest number of colors r such that every exact r -coloring of \mathbb{Z}_n admits a rainbow solution to the equation eq . In this talk we show that for every exact 4-coloring of \mathbb{Z}_p , where $p \geq 3$ is prime, there exists a rainbow solution to the Sidon equation $x_1 + x_2 = x_3 + x_4$. Furthermore, we determine the rainbow number of \mathbb{Z}_n for the Sidon equation. We also discuss the rainbow number of the set of integers $[n] = \{1, \dots, n\}$ for an equation eq , denoted $rb([n], eq)$, and determine the rainbow number of $[n]$ for the Sidon equation. This is joint work with Jürgen Kritschgau.

