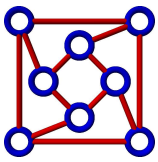

DiMaS
Discrete Mathematics Seminar
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Ordered Distance Antimagic Graphs

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A graph G with the vertex set $V(G)$, edge set $E(G)$ and $|V(G)| = n$ is called *distance magic* if there exists a bijection

$$f : V \to \{1, 2, \ldots, n\}$$

such that the *weight* of each vertex x, defined as

$$w(x) = \sum_{xy \in E(G)} f(y),$$

is equal to the same constant μ, called the *magic constant*. The labeling is called a *distance magic labeling*.
An *ordered distance antimagic labeling* of a graph $G(V, E)$ with n vertices is a bijection $\vec{f} : V \to \{1, 2, \ldots, n\}$ with the property that $\vec{f}(x_i) = i$ and the sequence of the weights $w(x_1), w(x_2), \ldots, w(x_n)$ forms an increasing arithmetic progression with difference one. A graph G is an *ordered distance antimagic graph* if it allows an ordered distance antimagic labeling.

The notions of distance magic and ordered distance antimagic labelings are closely related to *fair* and *handicap* incomplete round robin tournaments.

We will present a class of graphs with ordered distance antimagic labeling based on *sets of magic rectangles* and two more classes of ordered distance antimagic graphs.