The dichromatic number of a digraph $D$ is defined to be the minimum number of colors required to color the vertices of $D$ in such a way that every chromatic class induces an acyclic subdigraph in $D$. A tournament is an orientation of the complete graph. Let $m$ be a positive integer. A circulant tournament $\overrightarrow{C}_{2m+1}(J)$ is defined by $V(\overrightarrow{C}_{2m+1}(J)) = \mathbb{Z}_{2m+1}$ and $A(\overrightarrow{C}_{2m+1}(J)) = \{(i, j) : i, j \in \mathbb{Z}_{2m+1} \setminus \{0\} \text{ and } j - i \in J\}$, where $J \subseteq \mathbb{Z}_{2m+1} \setminus \{0\}$ and $|J \cap \{a, -a\}| = 1$ for every $a \in \mathbb{Z}_{2m+1} \setminus \{0\}$. The set $J$ is called the symbol set (the elements of $J$ are sometime called the jumps) of $\overrightarrow{C}_{2m+1}(J)$. The cyclic circulant tournament is denoted by $\overrightarrow{C}_{2m+1}(1, 2, ..., m)$. Denote by $\overrightarrow{C}_{2m+1}(k)$ the circulant tournament obtained from the cyclic tournament by reversing one of its jumps, that is, $\overrightarrow{C}_{2m+1}(k) = \overrightarrow{C}_{2m+1}(1, 2, ..., -k, ..., m)$ for some $k \in \{1, 2, ..., m\}$. With this definition, the cyclic tournament $\overrightarrow{C}_{2m+1}(1, 2, ..., m)$ becomes $\overrightarrow{C}_{2m+1}(\emptyset)$. In this talk, the dichromatic number of $\overrightarrow{C}_{2m+1}(k)$ is determined for every $k \in \{1, 2, \ldots, m\}$.

Keywords: circulant tournament, dichromatic number.

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References

