SEMINARIO:

TOTAL DOMINATION AND THE CACCETTA-HÄGGKVIST CONJECTURE

Relatori

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Abstract

A total dominating set in a digraph $G$ is a subset $W$ of its vertices such that every vertex of $G$ has an immediate successor in $W$. The total domination number of $G$ is the size of the smallest total dominating set. We consider several lower bounds on the total domination number and conjecture that these bounds are strictly larger than $g(G)-1$. where $g(G)$ is the number of vertices of the smallest directed cycle contained in $G$. We prove that these new conjectures are equivalent to the Caccetta-Häggkvist conjecture which asserts that $g(G)-1<n/r$ in every digraph on $n$ vertices with minimum outdegree at least $r>0$. 