Abstract:

For an integer $k \geq 1$, a (distance) $k$-dominating set of a graph $G$ is a set $S$ of vertices of $G$, such that every vertex of $V(G) \setminus S$ is at distance at most $k$ from some vertex of $S$. The minimum cardinality of a $k$-dominating set of $G$ is its (distance) $k$-domination number, denoted $\gamma_k(G)$. In this talk we introduce and prove a new inequality related to the well studied Vizing’s Conjecture (open since 1968). In particular, we show $\gamma_1(G \Box H) \geq \gamma_2(G)\gamma_2(H)$, where $G \Box H$ denotes the cartesian product of simple graphs $G$ and $H$. 