On 2-dominating kernels in graphs

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(joint work with Andrzej Włoch)

A subset $S \subseteq V(G)$ is an independent set of $G$ if no two vertices of $S$ are adjacent in $G$. A subset $Q \subseteq V(G)$ is a 2-dominating set of $G$ if each vertex from $V(G) \setminus Q$ has at least two neighbours in $Q$.

We define new kind of kernels in graphs. Using existing concepts of an independent set and a 2-dominating set, we define in the natural way the concept of 2-dominating kernels in graphs.

A subset $J \subset V(G)$ is a 2-dominating kernel of $G$ if $J$ is independent and 2-dominating. Clearly a 2-dominating kernel of $G$ is a kernel of $G$.

Every graph does not always posses a 2-dominating kernel.

In the talk we give characterizations of some classes of graphs with 2-dominating kernels.