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ON $(2 - d)$ -KERNELS IN TWO GENERALIZATIONS OF THE PETERSEN GRAPH

A subset $D \subseteq V(G)$ is called a *p-dominating set* of a graph G if every vertex from $V(G) \setminus D$ has at least p neighbours in D . If $p = 1$, then we obtain *dominating set*. If $p = 2$, then we get *2-dominating set*.

A subset $J \subseteq V(G)$ is a *$(2 - d)$ -kernel* of a graph G if J is independent and 2-dominating, simultaneously.

In the talk we present two different generalizations of the Petersen graph and we give complete characterizations of these graphs which have $(2 - d)$ -kernel. Moreover, we determine the number of $(2 - d)$ -kernels of these graphs as well as their lower and upper kernel number.

This is joint work with Paweł Bednarz.

References

- [1] P. Bednarz, N. Paja, *On $(2-d)$ -Kernels in Two Generalizations of the Petersen Graph*, Symmetry 13, 2021, pp. 1948.