

Aleksandra Gorzkowska

AGH University

INDEPENDENT DOMINATION IN PLANAR GRAPHS

A set S of vertices in a graph G is a dominating set of G if every vertex not in S is adjacent to a vertex in S . An independent dominating set in G is a dominating set of G with the additional property that it is an independent set. The independent domination number, $i(G)$, is the minimum cardinality among all independent dominating sets in G . It is known that for any planar graph G of order n with minimum degree at least 2, it holds that $i(G) \leq \frac{1}{2}n$ [1]. In the talk we present an infinite family of planar graphs G with minimum degree 2 that achieve equality in the bound. It is known that for any tree T of order n , it holds that $i(T) \leq \frac{1}{2}n$. We also provide a constructive characterization of all trees T that achieve equality in the bound.

This is joint work with Michael A. Henning, Elżbieta Kleszcz, and Monika Pilśniak.

References

- [1] W. Goddard, and M. A. Henning, *Independent domination, colorings and the fractional idomatic number of a graph*, Applied Mathematics and Computation 382, 2020, 125340.