



SEMINARIUM MATEMATYKA DYSKRETNA

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Three sets of problems related to automorphism breaking in graphs

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This talk presents three sets of open problems of varying difficulties about finite or infinite graphs of maximum degree 3.

A set of vertices in a graph G is asymmetrizing if the identity mapping is the only automorphism that preserves it. If such sets exist, then their minimum cardinality is the asymmetrizing cost $r(G)$ of G . A closely related concept is the asymmetrizing density $\delta(G)$. For finite G it is the quotient of $r(G)$ by the order of G , for infinite graphs it is defined by a limit process.

The motion $m(G)$ of a graph G is the smallest number of vertices moved by any non-identity automorphism of G .

The first set of problems pertains to the construction of connected, subcubic infinite graphs of arbitrary densities between the obvious bounds 0 and $1/2$.

The second set of problems asks for the structure of vertex-transitive cubic graphs of given motion.

The third set is about the existence of vertex-transitive cubic graphs with uncountable group and an imprimitivity set of double rays.