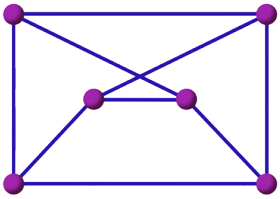

SEMINARIUM
MATEMATYKA DYSKRETNA

wtorek, 22 listopada 2022 r., godz. 12:30, on-line

Vertex-coloring graphs with 4-edge-weightings

Ralph Keusch

In 2004, Karoński, Łuczak and Thomason conjectured that for each connected graph on at least 3 vertices, it is possible to assign weights from $\{1, 2, 3\}$ to the edges such that neighboring vertices always obtain different weighted degrees. In 2011, Kalkowski, Karoński, and Pfender showed that such an assignment is possible with the weight set $\{1, 2, 3, 4, 5\}$. Recently, Przybyło verified the conjecture for graphs where the minimum degree is sufficiently large compared to the maximum degree and proved that for regular graphs, the weight set $\{1, 2, 3, 4\}$ is sufficient. In this talk, we improve upon the general result and show how a flow-based approach can be used to find such an edge-weighting with the weight set $\{1, 2, 3, 4\}$ for each connected graph on at least 3 vertices.