



## SEMINARIUM MATEMATYKA DYSKRETNA

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### Majority Edge-Colorings of Graphs

**Rafał Kalinowski**  
WMS AGH

Motivated by some similar notions considered for vertex-colorings, we introduce the notion of majority edge-colorings of graphs: For a simple graph  $G$ , a coloring  $c : E(G) \rightarrow [k]$  is called a majority  $k$ -edge-coloring if, for every vertex  $u$  of  $G$  and every color  $\alpha$  in  $[k]$ , at most half the edges incident with  $u$  have the color  $\alpha$ . We prove the best possible result that every graph without pendant edges has a majority 4-coloring. We also address the question which graphs admit majority 3-edge-colorings. Moreover, we investigate a natural fractional variation of majority edge-colorings.

This is joint work with Felix Bock, Johannes Pardey, Monika Pilśniak, Dieter Rautenbach, and Mariusz Woźniak.