



# SEMINARIUM MATEMATYKA DYSKRETNA

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wtorek, 17 stycznia 2023 r., godz. 12:30, s. 304 A3-A4

## Asymmetrizing trees

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A graph is called asymmetrizable if there exists a 2-coloring of its vertices that is only preserved by the identity automorphism. There are surprisingly many natural classes of asymmetrizable graphs, both finite and infinite. First result on this topic is due to Babai, who proved in 1977 that every  $\alpha$ -regular tree is asymmetrizable, where  $\alpha$  is any cardinal.

The talk presents the following generalization of Babai's result (and other results of Polat, Sabidussi, Imrich and Tucker). Every infinite tree whose degrees are bounded by  $2^m$ , where  $m$  is an arbitrary infinite cardinal, is asymmetrizable if all nonidentity automorphisms move at least  $m$  vertices. Moreover, the number of nonequivalent asymmetrizing 2-colorings of a tree  $T$  satisfying the above conditions is  $2^{|T|}$ .

This is joint work with Wilfried Imrich, Florian Lehner, Monika Pilśniak, and Marcin Stawiski.