



## THESIS ASSIGNMENT

**Name and Surname:** Bc. Bohdan Józsa  
**Study programme:** Computer Science (Single degree study, master II. deg., full time form)  
**Field of Study:** Computer Science  
**Type of Thesis:** Diploma Thesis  
**Language of Thesis:** English  
**Secondary language:** Slovak

**Title:** Edge colourings of signed cubic graphs

**Annotation:** Signed graphs are graphs, whose edges have assigned values from  $\{-1, 1\}$ . Switching at a vertex  $v$  of a graph is done by multiplying the values of all edges incident with  $v$  by  $-1$ . Graphs that can be obtained from each other by switching are called equivalent. There are plenty of papers studying generalization of standard graph invariants to signed graphs. One of these invariants is graph colouring. The thesis should focus on edge colourings of signed cubic graphs. The study of edge colourings of signed graphs was started by Behr [Edge coloring signed graphs, Discrete Mathematics 343(2020)]. The aim of the thesis is to initiate the systematic study of 3-edge-colourability of signed cubic graphs.

**Supervisor:** doc. RNDr. Robert Lukot'ka, PhD.  
**Department:** FMFI.KI - Department of Computer Science  
**Head of department:** prof. RNDr. Martin Škoviera, PhD.

**Assigned:** 16.11.2022

**Approved:** 28.04.2023  
prof. RNDr. Rastislav Kráľovič, PhD.  
Guarantor of Study Programme

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Student

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Supervisor