



FACULTY
OF MATHEMATICS
AND PHYSICS
Charles University

Report on defence of dissertation thesis

Academic year: 2023/2024

Student's name and surname: Mgr. Michael Skotnica
Student's ID: 23285158

Type of the study programme: doctoral
Study programme: Computer Science - Theory of Computing, Discrete Models and Optimization

Study ID: 601801

Title of the thesis: Combinatorics, group theory, computational complexity & topology
Thesis department: Department of Applied Mathematics (202. • 32-KAM)
Language of the thesis: English
Language of defence: English
Supervisor: doc. RNDr. Martin Tancer, Ph.D.
Reviewer(s): Masahiro Hachimori
prof. Ulrich Bauer

Date of defence: 25.03.2024 **Venue of defence:** Praha
Attempt: regular

Course of defence: The defense committee chair welcomed the audience, confirmed that the defense was properly announced in line with the university regulations and that the student has fulfilled all requirements of his PhD. study to be eligible for the defense of the PhD. thesis. He then introduced the student, pointing out in particular the START grant "Chordality of simplicial complexes and Simon's conjecture" that the student successfully lead as the PI. The advisor of the student (prof. Tancer) further referred on the course of the study and the main results contained in the thesis. The student then presented the three main topics considered in his thesis, which contributed to the development of computational topology. The presentation was well-structured and easy to follow even for the non-specialists in the audience. Afterwards, the opponents (prof. Ulrich Bauer from Munich Technical University and prof. Masahiro Hachimori from University of Tsukuba) summarized their reports and asked several questions. Prof. Bauer asked whether one of the results known for the second barycentric subdivisions could be true for barycentric subdivisions (the problem is open). Prof. Masahiro asked the student about future directions in the computational topology. The student answered the questions to the opponents' satisfaction. In general discussion, the student answered questions concerning other possible parameterizations of one of the considered computational problems, and concerning possible ways how one of the proposed problems on extendable shellability could be approached.

Result of defence:	pass (P)	
Chair of the board:	prof. Mgr. Zdeněk Dvořák, Ph.D.
Committee members:	prof. Mgr. Milan Hladík, Ph.D.
	doc. RNDr. Vít Jelínek, Ph.D.
	prof. RNDr. Jiří Sgall, DrSc.
	doc. RNDr. Tomáš Valla, Ph.D.