FACULTY
OF MATHEMATICS
AND PHYSICS
Charles University

Report on defence of dissertation thesis

Academic year: 2023/2024

Student's name and surname:	Mgr. Denys Bulavka
Student's ID:	17242505
Type of the study programme:	doctoral
Study programme:	Computer Science - Theory of Computing, Discrete Models and Optimization
Study ID:	628608
Title of the thesis:	Algebraic Tools in Combinatorial Geometry and 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):	Bruno Benedetti
	Andreas Holmsen
Date of defence:	28.02.2024 **Venue of defence:** Praha
Attempt:	regular

Course of defence:

The acting chair of the defense (prof. Kratochvil) 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. Then he introduced the student, pointing out the highlights of his CV such as being awarded the Jirka Matoušek prize twice. The advisor of the student (doc. Tancer) briefly reported on the course of the PhD. study of Denis Bulavka and expressed his content with the student's performance. The student then presented the main results of his thesis, giving a well balanced overview as well as many interesting details. The opponent prof. Benedetti (University of Miami) provided a detailed report on the thesis, pointing out that many of the results appeared in high-quality venues (journal Combinatorica, conference SoCG), and asked about a version of one of the problems restricted to shellable spheres. The other opponent prof. Holmsen (KAIST) also summarized his favourable report, and posed several questions (generalizations of colorful Helly theorem, the possibility of restraining the colors by more general matroids, Erdos-Ko-Rado properties on nerve complexes). The student answered the questions and the opponents explicitly expressed their full satisfaction with the answers. In the general discussion, the stundent also answered queries concerning the relationship between the weak and the strong saturation and whether the rigidity is the property of the graph or its particular embedding.

Result of defence:	pass (P)	
Chair of the board:	prof. Mgr. Zdeněk Dvořák, Ph.D.	....
Committee members:	prof. RNDr. Jan Kratochvíl, CSc.	....
	doc. RNDr. Martin Balko, Ph.D.	....
	prof. Mgr. Milan Hladík, Ph.D.	....
	prof. RNDr. Zdeněk Ryjáček, DrSc.	....