

ARISTOTELIS CHANIOTIS

Curriculum Vitae

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Department of Combinatorics & Optimization
University of Waterloo
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Education

Ph.D. in Combinatorics and Optimization Current

Department of Combinatorics & Optimization,
Faculty of Mathematics, University of Waterloo, Waterloo, Canada
Advisors: Sophie Spirkl and Karen Yeats

Master of Science in Algorithms, Logic and Discrete Mathematics 2019

National and Kapodistrian University of Athens and
National Technical University of Athens, Athens, Greece
M.Sc. Thesis: Structural and Topological Graph Theory and Well-Quasi-Ordering
Advisor: Dimitrios M. Thilikos

Bachelor of Science in Mathematics, specialization in Pure Mathematics 2016

Department of Mathematics,
National and Kapodistrian University of Athens, Athens, Greece.

Research Interests

My research is in combinatorics. I am particularly interested in structural graph theory and its connections, applications and consequences to other fields of mathematics and theoretical computer science such as: algorithms, optimization, complexity theory, logic and discrete geometry.

Currently, I am mainly focused on the study of induced subgraphs, chromatic number, and their interplay.

Research Papers

Note: All submitted preprints are available on arXiv at http://arxiv.org/a/chaniotis_a_1

Upcoming

1. Intersections of graphs and χ -boundedness
with Rimma Härmäläinen, Hidde Koerts, and Sophie Spirkl.

2. Local certification of forbidden induced subgraphs
with Linda Cook, Sepehr Hajebi, and Sophie Spirkl.
3. Induced subgraphs of graphs of large K_r -free chromatic number
with Mathieu Rundström and Sophie Spirkl.

Submitted for publication

1. Graphs of bounded chordality
with Babak Miraftab and Sophie Spirkl.
arXiv:2404.05992
2. The Sandwich problem for odd-hole-free and even-hole-free graphs
with Kathie Cameron, Celina M. H. de Figueiredo, and Sophie Spirkl.
arXiv:2404.10888

Published

1. Minimal induced subgraphs of the class of 2-connected non-Hamiltonian wheel-free graphs
with Zishen Qu and Sophie Spirkl.
Discrete Mathematics 346.3 (2023): 113289, arXiv:2204.07671

Selected Research Talks

Upcoming

- Intersections of graphs and χ -boundedness: Interval graphs, chordal graphs, and χ -guarding graph classes.
Algorithms Seminar, Carleton University, Ottawa, Canada, April 1, 2024
- Local structure of graphs of large K_r -free chromatic number.
New York Combinatorics Seminar, CUNY Graduate Center, New York City, NY, United States, April 19, 2024
- Local structure of graphs of large K_r -free chromatic number.
Discrete Mathematics Seminar, Rutgers University, New Brunswick, NJ, United States, April 22, 2024

Past

- Intersections of graphs and χ -boundedness: Interval graphs, chordal graphs, and χ -guarding graph classes.
Graphs & Matroids Seminar, University of Waterloo, Waterloo, Canada, February 27, 2024
- Intersections of graphs and χ -boundedness.
Athens Colloquium on Algorithms and Complexity (ACAC'23), National and Kapodistrian University of Athens, Athens, Greece, August 24-25, 2023
- Minimal induced subgraphs of the class of 2-connected non-Hamiltonian wheel-free graphs.
26th Ontario Combinatorics Workshop, University of Waterloo, Waterloo, Canada, May 13-14, 2022

Participation in Workshops and Conferences

Past

- Workshop on Algebraic, extremal, and structural methods and problems in graph colouring, Sparse Graphs Coalition, February 19-23, 2024
- Structural Graph Theory Bootcamp, University of Warsaw, Warsaw, Poland, September 22-26, 2023
- Athens Colloquium on Algorithms and Complexity (ACAC'23), National and Kapodistrian University of Athens, Athens, Greece, August 24-25, 2023
- European Conference on Combinatorics, Graph Theory and Applications (EUROCOMB'23), Charles University, Prague, Czech Republic, August 28 - September 1, 2023
- Canadian Discrete and Algorithmic Mathematics (CanaDAM), University of Manitoba and University of Winnipeg, Winnipeg, Canada, June 5–8, 2023
- Workshop on χ -boundedness, Sparse Graphs Coalition, (27-31 March 2023)
- Algorithms, Combinatorics and Optimization Research Network (ACORN) Meeting, Georgia Institute of Technology, Atlanta, Georgia, March 9–11, 2023
- 26th Ontario Combinatorics Workshop, University of Waterloo, Waterloo, Canada, May 13-14, 2022
- New Perspectives in Colouring and Structure, Banff International Research Station, Online & UBCO, October 17-22, 2021

Education for Teaching

I am currently pursuing the **Certificate in University Teaching** program, which is offered by the Centre for Teaching Excellence of the University of Waterloo.

I have been awarded the certificate in **Fundamentals of University Teaching** offered by the Centre for Teaching Excellence of the University of Waterloo. In the context of this program I completed the following workshops:

- CTE1202 - Effective Lesson Plans
- CTE1266 - Online Delivery Skills - Synchronous Teaching
- CTE2160 - Collecting and Using Feedback on Your Teaching
- CTE2196 - Statements of Teaching Philosophy
- CTE2259 - Supporting Student Mental Health

Teaching Experience

University of Waterloo

Teaching Assistant

- CO 370: Deterministic Operations Research Models, taught by Martin Pei, Winter 2024
- CO 342: Introduction to Graph Theory, taught by Penny Haxell, Fall 2023
- MATH 239: Introduction to Combinatorics, taught by Douglas Stebila, Spring 2023
- CO 250: Introduction to Optimization, taught by Henry Wolkowicz, Winter 2023
- MATH 239: Introduction to Combinatorics, taught by Luke Postle, Fall 2022
- CO 342: Introduction to Graph Theory, taught by Sophie Spirkl, Spring 2022
- CO 250: Introduction to Optimization, taught by Jochen Koenemann, Winter 2022
- MATH 135: Algebra for Honours Mathematics, taught by Anton Mosunov, Fall 2021

Student Mentoring

Context: Directed Reading Program organised by the Women in Mathematics committee
Faculty of Mathematics, University of Waterloo

Time Period: September 2022 - December 2022

Project title: Theory of Excluding Induced Subgraphs and The Erdős-Hajnal Conjecture

Student: Grace Sung

Service

Referee

- Electronic Journal of Combinatorics
- 48th International Symposium on Mathematical Foundations of Computer Science

Co-organizer

- Reading Group on χ -boundedness, with Hidde Koerts, Department of Combinatorics & Optimization, University of Waterloo, Winter 2024