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ARISTOTELIS CHANIOTIS
Curriculum Vitae

Updated: December 4, 2024

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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 and Optimization,
Faculty of Mathematics, University of Waterloo, Waterloo, Canada
Thesis: Exploring the interplay between graph structure and K_r-free chromatic number
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
Thesis: Structural and Topological Graph Theory and Well-Quasi-Ordering
Advisor: Dimitrios M. Thilikos

Bachelor of Science in Mathematics   2016
with specialization in Pure Mathematics
Department of Mathematics,
National and Kapodistrian University of Athens, Athens, Greece

Research Interests

My research is in combinatorics. In particular, I am interested in structural graph theory and its connections, applications, and consequences in other branches of graph theory (for example extremal and topological graph theory) as well as to fields of mathematics and theoretical computer science such as: optimization, algorithms, complexity theory, logic, and discrete geometry.

Currently, I am focused on: induced subgraphs; the operation of intersection between graphs; the K_r-free chromatic number; and the interplay among these topics.

Research Papers

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

Upcoming

9. The problem of deciding whether or a not a graph has chordality at most two
   with Therese Biedl, Taite LaGrange, Babak Miraftab, and Sophie Spirkl.

8. Induced subgraphs of graphs of large K_r-free chromatic number. II.
   with Taite LaGrange, Mathieu Rundström and Sophie Spirkl.

7. K_{r+1}-free intersection graphs of line segments with arbitrarily large K_r-free chromatic number
   with Bartosz Walczak.

6. Induced subgraphs of graphs of large K_r-free chromatic number. I.
   with Mathieu Rundström and Sophie Spirkl.

5. Intersections of graphs and χ-boundedness. II.
   with Hidde Koerts and Sophie Spirkl.

4. Intersections of graphs and χ-boundedness. I.
   with Hidde Koerts and Sophie Spirkl.

Submitted for publication

3. 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

Research Visits

Department of Theoretical Computer Science	May 2024
Jagiellonian University, Kraków, Poland	
(*hosted by Bartosz Walczak*)	1 week

Selected Research Talks

○ Induced subgraphs of graphs of large K_r-free chromatic number.
Graph Theory Seminar, Georgia Institute of Technology, Atlanta, GA, United States, November 26, 2024

○ Induced subgraphs of graphs of large K_r-free chromatic number.
Graphs and Matroids Seminar, University of Waterloo, Waterloo, ON, Canada, November 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

○ 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

- Intersections of graphs and χ-boundedness: Interval graphs, chordal graphs, and χ-guarding graph classes.
  Algorithms Seminar, Carleton University, Ottawa, Canada, April 1, 2024

- 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

- New Perspectives in Colouring and Structure, Banff International Research Station, Banff, Alberta, Canada, September 29 - October 4, 2024

- 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 442/642: Graph Theory,
  taught by Penny Haxell, Fall 2024

- MATH 674.005: Graph Theory,
  taught by J.P. Pretti, Fall 2024

- MATH 235: Linear Algebra II for Honours Mathematics,
  taught by Faisal Al-Faisal, Spring 2024

- 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

- Journal of Combinatorial Theory, Series B

- Information and Computation

- Journal of Graph Theory

- 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

Awards

- Directed Reading Program Mentorship Award, Women in Mathematics Committee, Faculty of Mathematics University of Waterloo (Fall 2022, $400 CAD)