Félix Gélinas

Toronto, Ontario, Canada felixgel@yorku.ca

Education

York University (Advisors: Nantel Bergeron and Vincent Pilaud)	2023 – expected 2027
Doctor of Phylosophy in Mathematics (PhD)	*Toronto, Ontario, Canada*
University of Toronto (Advisor: Swastik Kopparty)	2022 – 2023
Master of Science in Mathematics (MSc)	*Toronto, Ontario, Canada*
Université du Québec à Montréal (UQAM)	2019 – 2022
Bachelor of Science in pure mathematics (BSc)	*Montréal, Québec, Canada*

Research Experience

PhD project (Advisors: Nantel Bergeron and Vincent Pilaud)	September, 2023 – Present
York University	*Toronto, Ontario, Canada*
Supervision of Summer internship in Research Groups (York)	May, 2024 – August, 2024
York University	*Toronto, Ontario, Canada*

Group Working On Holpf Algebra

- Working with Mike Zabrocki, Lucas Gagnon
- Supervising students Eric Schlums and Nicolas Andrews
- Writing of an article
- Programming (SageMath)
- Hopf Algebra

Group Working On Machine Learning

- Working with Mike Zabrocki, Lucas Gagnon
- Supervising students Eniola Ogunjimi and Inderpreet Ganda
- Writing of an article
- Programming (SageMath)
- Machine Learning, Combinatorics

Master Thesis project (Advisor: Swastik Kopparty (UofT))	May, 2023 – August, 2023
University of Toronto (UofT)	*Toronto, Ontario, Canada*

- Summarizing articles
- Writing of a rapport of articles
- Reading articles
- Combinatorics, Graph Theory

Summer internship in Research (Advisor: Hugh Thomas (UQAM))	May, 2022 – August, 2022
Université du Québec à Montréal (UQAM)	*Montréal, Québec, Canada*

- Writing of an article
- Programming (SageMath)
- Combinatorics, Dyck path

Summer internship in Research (Advisor: Hugh Thomas (UQAM))	May, 2021 – August, 2021
Université du Québec à Montréal (UQAM)	*Montréal, Québec, Canada*

- Writing of an article
- Programming (SageMath)
- Algebra, Group theory

Teaching Assistant (TA)

Teaching Assistant (TA) — May 2025 – Present

York University — *Toronto, Ontario, Canada*
- Introduction to Logic for Computer Science (MATH1090)

Teaching Assistant (TA) — January 2025 – April 2025

York University — *Toronto, Ontario, Canada*
- Introduction to Logic for Computer Science (MATH1090)
- Problems, Conjectures and Proofs (MATH1200)

Teaching Assistant (TA) — September 2024 – December 2024

York University — *Toronto, Ontario, Canada*
- Differential Calculus with Applications (MATH1300)
- Introduction to Logic for Computer Science (MATH1090)
- Problems, Conjectures and Proofs (MATH1200)

Teaching Assistant (TA) — May 2024 – June 2024

York University — *Toronto, Ontario, Canada*
- Applied Multivariate and Vector Calculus (MATH2015)

Teaching Assistant (TA) — January 2024 – April 2024

York University — *Toronto, Ontario, Canada*
- Integral Calculus with Applications (MATH1310)
- Problems, Conjectures and Proofs (MATH1200)

Teaching Assistant (TA) — September 2023, December 2023

York University — *Toronto, Ontario, Canada*
- Problems, Conjectures and Proofs (MATH1200)
- Differential Calculus with Applications (MATH1300)

Teaching Assistant (TA) — September, 2022 – April 2023

University of Toronto — *Toronto, Ontario, Canada*
- Calculus I (MAT135)
- Calculus II (MAT136)

Teaching Assistant (TA) — January, 2022 – April 2022

Université du Québec à Montréal (UQAM) — *Montréal, Québec, Canada*
- Calculus of Differential Forms (MAT2410)

Other Experience

Moderator for Mathematical Summer in Paris — July, 2021 – July 2021

Université Paris-Saclay — *Paris, France*
- Moderator for an online mathematical conference (from July 5 to 9, 2021)

Preprint

When are Hopf Algebras Determined by Integer Sequences? (https://arxiv.org/abs/2505.06941) – Nicolas Andrews, Lucas Gagnon, Félix Gélinas, Eric Schlums Mike Zabrocki.

Proof of a conjecture of Matherne, Morales, and Selover on encodings of unit interval orders (https://arxiv.org/abs/2212.12171) – Félix Gélinas, Adrien Segovia, Hugh Thomas. Accepted in The Electronic Journal of Combinatorics.

Publications

Gabriel Frieden, Félix Gélinas, and Étienne Soucy. "Cones and ping-pong in three dimensions". In: *Involve, a Journal of Mathematics* 17.1 (Mar. 2024), pp. 11–28. ISSN: 1944-4176. DOI: 10.2140/involve.2024.17.11. URL: http://dx.doi.org/10.2140/involve.2024.17.11

Presentations (Talks)

Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM)   May, 2025
University of Ottawa   *Ottawa, Ontario, Canada*
- Source Characterization of the Hypergraphic Posets
- Conference Program

Algebraic and enumerative combinatorics seminar   May, 2025
University of Waterloo   *Waterloo, Ontario, Canada*
- Source Characterization of the Hypergraphic Posets
- Seminar Program

Winter School and Workshop on Polytopes   February, 2025
Universität Osnabrück   *Osnabrück, Lower Saxony, Germany*
- Source Characterization of the Hypergraphic Posets
- Conference Program

Séminaire du LACIM   February, 2025
Université du Québec à Montréal (UQAM)   *Montréal, Québec, Canada*
- Caractérisation du poset hypergraphique à partir des sources d'orientations acycliques
- Seminar Program

Combinatorial Algebra meets Algebraic Combinatorics (CAAC)   January, 2025
The Fields Institute   *Toronto, Ontario, Canada*
- Source Characterization of the Hypergraphic Posets
- CAAC Program

The Algebraic Combinatorics Workgroup   October-November, 2024
Nantel Bergeron (York University) − Vasu Tewari (UofT)   *The Fields Institute, Toronto, Ontario, Canada*
- Hypergraphic polytopes | Part 1 - Part 2
- Part 1 : www.fields.utoronto.ca/talks
- Part 2 : www.fields.utoronto.ca/talks

The Algebraic Combinatorics Workgroup   May, 2024
Nantel Bergeron− Kelvin Chan− Blessing Oni (York University)   *The Fields Institute, Toronto, Ontario, Canada*
- Gently Discovering Gentle Algebras
- https://garsia.math.yorku.ca/fieldseminar
- Link to the presentation (YouTube)

Graduate student Group   May, 2024
Leo Jiang (UofT)   *The Fields Institute, Toronto, Ontario, Canada*
- Permutrees

The Algebraic Combinatorics Workgroup   September, 2023
Nantel Bergeron− Kelvin Chan− Blessing Oni (York University)   *The Fields Institute, Toronto, Ontario, Canada*
- The volume polynomial of a Matroid
- https://garsia.math.yorku.ca/fieldseminar
- Link to the presentation (YouTube)

The Graduate Student Seminar UofT   March, 2023
Mathematics Departement UofT   *Toronto, Ontario, Canada*
- Proof of a conjecture of Matherne, Morales, and Selover on encodings of unit interval orders

The Algebraic Combinatorics Workgroup   March, 2023
Nantel Bergeron (York University)– Kelvin Chan (York University)   *The Fields Institute, Toronto, Ontario, Canada*
- Cones and ping-pong in three dimensions
- https://garsia.math.yorku.ca/fieldseminar
- Link to the presentation (YouTube)

Applied Algebra Seminar   March, 2023
Lucas Gagnon (York University)   *York, Ontario, Canada*
- Proof of a conjecture of Matherne, Morales, and Selover on encodings of unit interval orders
- https://garsia.math.yorku.ca/seminar/algebra.html

The Graduate Students Seminar (UQAM)   August, 2022
Université du Québec à Montréal (UQAM)   *Montréal, Québec, Canada*
- Cones and ping-pong in three dimensions

Pan-Québec colloquium for students of the ISM   June, 2022
Institute of Mathematical Sciences (ISM)   *Québec, Québec, Canada*
- Cones and ping-pong in three dimensions
- http://ism.uqam.ca/Colloque-panquebecois

Presentations (Poster)

AlCoVe : an Algebraic Combinatorics Virtual Expedition   May, 2025
                                                                       Online Conference
- Source Characterization of the Hypergraphic Posets
- AlCoVe Program

VIII Encuentro Colombiano de Combinatoria (ECCO)   June, 2024
CIMPA Research School   *Popayàn, Cauca, Colombia*
- Proof of a conjecture of Matherne, Morales, and Selover on encodings of unit interval orders
- ECCO Program

Combinatorial Algebra meets Algebraic Combinatorics (CAAC)   January, 2024
Université du Québec à Montréal   *Montréal, Québec, Canada*
- The volume polynomial of a Matroid
- CAAC Program

Combinatorial Algebra meets Algebraic Combinatorics (CAAC)   January, 2023
University of Waterloo   *Waterloo, Ontario, Canada*
- Proof of a conjecture of Matherne, Morales, and Selover on encodings of unit interval orders
- https://sites.google.com/view/caac2023/schedule
- Link to the poster

Awards & Honors

Kingsley Abu Imonikhe Graduate Award   2025
York University

Academic Excellence Fund   2025
York University

Vernon Oliver Stong Graduate Scholarships in Science   2024
York University

Graduate Studies   2023-2027
York University

Graduate Studies   2023-2024
York University

Graduate Studies	2022-2023
University of Toronto	
Undergraduate Student Research Awards	2022
NSERC	
Advisor contribution NSERC	2022
Hugh Thomas	
Supplements of the NSERC Undergraduate Student Research Awards	2022
FRQNT	
Undergraduate summer scholarship	2021
Institute of Mathematical Sciences (ISM)	
Advisor contribution ISM	2021
Hugh Thomas	
Advisor contribution ISM	2021
Christophe Reutenauer	

Summer Schools

VIII Encuentro Colombiano de Combinatoria (ECCO)	2024
CIMPA Research School, Popayàn, Cauca, Colombia	
ISM Discovery School: Advances in Geometric Combinatorics and Representation Theory	2024
R. González D'Léon − A. H. Morales − F. Saliola − H. Thomas, Montréal, Québec, Canada	

Winter Schools

Winter School and Workshop on Polytopes	2025
M. Juhnke − M. Reitzner − C. Thäle , Osnabrück, Lower Saxony, Germany	

Workshop

Lattice Theory Workshop	2025
The Banff International Research Station (BIRS), Banff, Alberta, Canada	

Seminars & Conferences attended

AlCoVe : an Algebraic Combinatorics Virtual Expedition	2025
L. Colmenarejo − M. Gillespie − O. Pechenik − L. Solus − F. Tom − L. Vecchi, Online Conference	
Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM)	2025
Ottawa, Ontario, Canada	
Algebraic and Enumerative Combinatorics Seminar of the University of Waterloo	2025
Karen Yeats, Waterloo, Ontario, Canada	
Combinatorics Seminar of UofT	2025
Vasu Tewari, Toronto, Ontario, Canada	
Winter School and Workshop on Polytopes	2025
M. Juhnke − M. Reitzner Osnabrück − C. Thäle, Lower Saxony, Germany	
LACIM seminar	2025
J. Bastidas − S. Giraudo − C. Reutenauer, Montréal, Québec, Canada	
Combinatorial Algebra meets Algebraic Combinatorics (CAAC)	2025
S. Faridi − S. Kara − R. Orellana − G. Smith − V. Tewari − M. Zabrocki, Toronto, Ontario, Canada	
The Algebraic Combinatorics Workgroup	2022-2025
Nantel Bergeron − Kelvin Chan − Vasu Tewari, The Fields Institute, Toronto, Ontario, Canada	

Applied Algebra Seminar 2022-2025
Lucas Gagnon, York, Ontario, Canada

Workshop on Computational and Applied Enumerative Geometry 2024
T. Brysiewicz − L. Garcia Puente − N. Hein − J. Lopez Garcia − K. Purbhoo, Toronto, Ontario, Canada

Combinatorial Algebra meets Algebraic Combinatorics (CAAC) 2024
S. Brauner − J. Levinson − A. Morales − G. Park − F. Saliola − H. Thomas, Montréal, Québec, Canada

The Graduate Student Seminar UofT 2023
Graduate Student of UofT, Toronto, Ontario, Canada

Matroids - Combinatorics, Algebra and Geometry Seminar 2023
Ahmed Ashraf, The Fields Institute, Toronto, Ontario, Canada

Combinatorial Algebra meets Algebraic Combinatorics (CAAC) 2023
Sara Faridi−Selvi Kara −Oliver Pechenik −Matthew Satriano, Waterloo, Ontario, Canada

The Graduate Students Seminar (UQAM) 2022
Université du Québec à Montréal (UQAM), Montréal, Québec, Canada

Non-Commutative Algebra, Representation Theory, Special Functions (Conference) 2022
CRM, Montréal, Québec, Canada

Pan-Quebec colloquium for students of the ISM 2022
Institute of Mathematical Sciences (ISM), Université Laval, Québec, Québec, Canada

Open Problems in Algebraic Combinatorics (OPAC) 2022
University of Minessota, Minneapolis, Minessota, USA

Graduate Student Conference on Combinatorics, Commutative Algebra and Geometry 2022
University of Minessota, Minneapolis, Minessota, USA

LACIM seminar 2021-2022
LACIM, Montréal, Québec, Canada

Interests

Combinatorics
Partially Ordered Set (Poset)
Graph Theory
Algebraic Combinatorics
Enumerative Combinatorics
Representation Theory
Algebra
Commutative Algebra
Algebraic Topology