

# Aram Dermenjian

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## Research Interests

My area of interest lies primarily in algebraic combinatorics and geometry. Primarily I'm interested in Coxeter groups, hyperplane arrangements, oriented matroids, order theory, and polytopes.

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## Academic Experience

- **Postdoctoral Fellow,** *September 2019 - Present,*  
York University, Toronto, Canada.
- **Visiting Researcher,** *May 2015 - June 2015,*  
Université du Québec à Montréal (LACIM), Montréal, Canada.
- **Visiting Researcher,** *February 2015 - April 2015,*  
L'École Polytechnique (LIX), Paris, France.

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## Professional Experience

### Teaching

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- **Lecturer,**  
York University, Toronto, Canada.  
Winter 2020 MATH1013M Applied Calculus I (course taught in English)
- **Lecturer,**  
Université du Québec à Montréal, Montréal, Canada.  
Fall 2018 MAT0344 Integration Calculus (course taught in French)  
Fall 2017 MAT1600 Matrix Algebra - for computer scientists (course taught in French)
- **Teaching Assistant,**  
Université du Québec à Montréal, Montréal, Canada.  
Winter 2017 INF1130 Discrete Mathematics  
Winter 2017 ANG3005 English Language and Literature I  
Fall 2016 INF1130 Discrete Mathematics  
Fall 2016 ANG4152 Pronunciation III  
Fall 2016 ANG3052 Speaking II

### Other

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- **Director of Applied Technologies,** *June 2010 - June 2015,*  
Delta Lambda Phi *Fraternity*, USA.  
**[Volunteer]** Created a website for event and member management.
- **Graduate Developer,**  
Ampersand E-Commerce, Manchester, UK, *September 2014 - January 2015.*  
Used Magento for the creation of e-commerce websites.

## Other professional experience cont.

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- **PHP Developer,** *July 2012 - September 2013,*  
BetterEdge Technology, Chandler, AZ, USA.  
Used PHP to create e-commerce websites.
- **PHP Developer [Consultant],** *June 2012 - December 2012,*  
Spring Studio, San Francisco, CA, USA.  
Used jQuery for the creation of mobile websites.
- **Software Engineer,** *September 2011 - May 2012,*  
Bright Media Inc., San Francisco, CA, USA.  
Used PHP for the creation of a job-search website.
- **PHP Developer,** *October 2010 - August 2011,*  
Quinstreet Inc., Foster City, CA, USA.  
Used PHP for the creation of education websites.
- **PHP Developer and Network administrator,** *December 2008 - September 2010,*  
Spring Studio, Sausalito, CA, USA.  
Used PHP for the creation of e-commerce websites.

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## Education

- **Ph.D. in Mathematics,** *2015 - 2019,*  
Université du Québec à Montréal, Montréal, Canada.  
Supervisor: Christophe Hohlweg and Vincent Pilaud (École Polytechnique, Paris, France)
- **M. Sc. Pure Mathematics and Mathematical Logic,** *2013 - 2014,*  
University of Manchester, Manchester, UK.
- **Bachelor of Science Mathematics,** *2004 - 2008,*  
University of California, Davis, CA.
  - The final year (2007-2008) was completed at Leeds University, Leeds, United Kingdom, under a study abroad program.

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## Research Contributions

### Publications

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- A. Dermenjian, C. Hohlweg, V. Pilaud. *The facial weak order and its lattice quotients* *Trans. Amer. Math. Soc.* **370** (2018), 1469-1507 DOI: <https://doi.org/10.1090/tran/7307>
- N. Bergeron, A. Dermenjian, J. Machacek. *Sign variation and descents* *Electron. J. Combin.* **27**, 4 (2020), 11 pp. DOI: <https://doi.org/10.37236/9801>

### Accepted publications

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- A. Dermenjian, C. Hohlweg, T. McConville, V. Pilaud. *The facial weak order on hyperplane arrangements* *Preprint*, 34 pp. *arXiv:1910.03511*, Jan 2021. To appear in *Disc. Comp. Geo.*

### Other refereed contributions to research

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- A. Dermenjian, C. Hohlweg, V. Pilaud. *The facial weak order in finite Coxeter groups, to appear in Proceedings FPSAC 2016 (Vancouver, July 2016).*

## Thesis

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- Aram Dermenjian, *Facial weak order, Coxeter groups and oriented matroids*, Thesis, Université du Québec à Montréal, October 2019, 200 pages.

## Research Funds

- **International Internship**, *Fonds de recherche du Québec - Nature et technologies*, \$15,000, (2018).
- **Merit scholarship program for foreign students**, *Fonds de recherche du Québec - Nature et technologies*, \$26,667, (2017-2018).
- **International Scholarship**, *Armenian General Benevolent Union*, \$1,900, (2017-2018).
- **ISM Graduate Scholarship**, *Institute of Mathematical Sciences*, \$12,833, (2016 - 2017).
- **Fee exemption Scholarship**, *UQAM*, (2015 - 2016).
- **ISM Graduate Scholarship**, *Institute of Mathematical Sciences*, \$14,000, (2015 - 2016).

## Seminar Talks

- Future talks
  - Algebra and Discrete Mathematics Seminar, University of California, Davis, Online (to be given Jan 2021)
  - Graduate Online Combinatorics Colloquium, Online (to be given Apr 2021)
  - 7th Encuentro Colombiano de Combinatoria, Bogota, Colombia (to be given Jun 2021)
- Sign variations and descents
  - Algebra, Geometry and Combinatorics Online Seminar, Online (Jan 2021)
  - Combinatorics Seminar, University of Minnesota, Online (Dec 2020)
  - Combinatorics Seminar, University of Copenhagen, Online (Nov 2020)
  - Discrete Math Seminar, University of Massachusetts, Amherst, Online (Nov 2020)
  - Algebra and representation theory seminar, University of Oklahoma, Online (Oct 2020)
  - Algebraic (and enumerative) combinatorics seminar, University of Waterloo, Online (Sep 2020)
  - Rocky Mountain Algebraic Combinatorics Seminar, Colorado State University, Online (Sep 2020)
- The facial weak order in simplicial hyperplane arrangements
  - University of Brisbane seminar, Brisbane, Australia (Aug 2019)
  - Flags, galleries and reflection groups, Sydney, Australia (Aug 2019)
  - Algebra and discrete mathematics seminar, UC Davis, Davis, CA, USA (Jun 2019)
  - 7th Canadian Discrete and Algorithmic Mathematics Conference, Vancouver, Canada (May 2019)
  - University of Minnesota seminar, Minneapolis, MN, USA (May 2019)
  - Algebra and combinatorics seminar, North Carolina State University, Raleigh, NC, USA (Apr 2019)
  - Graduate students in combinatorics conference 2019, Philadelphia, PA, USA (Apr 2019)
  - Applied Algebra Seminar, York University, Toronto, Canada (Nov 2018)

- The facial weak order in finite Coxeter groups
  - 10th Ottawa Mathematics Conference, Ottawa (June 2017)
  - Séminaire du LaCIM, UQAM, Montréal, Canada (Nov 2016)
  - FPSAC 2016, Vancouver, Canada (Jul 2016) \$800 scholarship awarded by the NSF
  - 2016 CMS Summer Meeting, Edmonton, Canada (Jun 2016)
  - 19th Panquebec student colloquium of the ISM, Montréal, Canada (May 2016)
- The facial weak order and its lattice quotients
  - AMS Sectional Meeting - Cluster algebras and related topics, Hartford, CT, USA (Apr 2019)
  - Algebraic Combinatorics and Group Actions, Herstmonceux Castle, UK (Jul 2016) \$2,000 scholarship awarded
  - Séminaire Lotharingien de Combinatoire, Strasbourg, France (Apr 2016) \$500 scholarship awarded by the Institute of Mathematical Sciences
- Introduction to Python
  - Sage Days 78: Combinatorics, Vancouver, BC, Canada (Jun 2016)

### Posters

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- The facial weak order on hyperplane arrangements
  - FPSAC 2020, Online (Jul 2020)
  - Summer school on geometric and algebraic combinatorics, Paris, France (Jun 2019)
- The facial weak order in finite Coxeter groups
  - Journées Nationales 2018 du GDR Informatique Mathématique, Paris, France (Apr 2018)

### Conferences participated in without giving a talk

- SageDays 105, Ljubljana, Slovenia (Jul 2019)
- FPSAC 2019, Ljubljana, Slovenia (Jul 2019) \$400 scholarship awarded by OpenDreamKit
- CRM 50th anniversary - Algebra and Combinatorics at LaCIM, Montréal, Canada (Sep 2018)
- SageDays at ICERM, Providence, RI, USA (Jul 2018)
- FPSAC 2018, Hanover, NH, USA (Jul 2018) \$550 scholarship awarded by the NSF
- 6th Encuentro Colombiano de Combinatoria, Barranquilla, Colombia (Jun 2018)
- Séminaire Lotharingien de Combinatoire, Lyon, France (May 2018)
- Cluster Algebras: Twenty Years On, Marseille, France (Mar 2018)
- Journées de combinatoire de Bordeaux 2018, Bordeaux, France (Feb 2018)
- FPSAC 2017, London, UK (Jul 2017) \$900 scholarship awarded by the NSF
- Sage Days 86: Algebra and Words in Combinatorics, Montréal, QC, Canada (Apr 2017)
- 2016 CMS Winter Meeting, Niagara, ON, Canada (Dec 2016)
- 2015 CMS Winter Meeting, Montréal, QC, Canada (Dec 2015)
- Sage Days 64.5: Cluster Algebras, Minneapolis, MN, USA (Jun 2015)
- 66th British Mathematical Colloquium, London, UK (Apr 2014)
- Non-crossing partitions in representation theory workshop, Bielefeld, Germany (Jun 2014)

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## Community Services

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### Conference organization

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- Queer and Trans Mathematicians in Combinatorics, Toronto, Canada (Jun 2021)  
*Lead Organizer - Organizing Committee*
- Co-organizer of the student research session at the 2017 CMS Winter Meeting. (Dec 2017)
- Co-organizer of the student research session at the 2017 Mathematical Congress of the Americas. (Jul 2017)

### Seminar Organization

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- Organizer of the Applied Algebra seminar at York University. (2020-2021)
- Organizer of the Algebraic Combinatorics seminar at the Fields Institute. (2020-2021)
- Organiser of the Postgraduate student seminar in mathematics at UQAM. (2015 - 2017)
- Organiser of the summer mathematics seminar at UQAM. (2015 - 2017)

### Other

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- Co-chair of the Canadian Mathematical Society Student Committee. (2016 - 2018)
- Representative in postgraduate program committee for mathematics at UQAM. (2015 - 2017)
- Treasurer for postgraduate students in mathematics association at UQAM. (2015 - 2016)
- Volunteer for the environmental committee of the science student association at UQAM. (2015 - 2018)
- Represented the pure mathematics students as a representative on the postgrad student staff liaison board at the University of Manchester.

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## Languages

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English C2 *Primary language.*

French C1 *Advanced Level.*

Spanish A2 *Basic Level.*

Armenian B2 *Mother tongue.*

Note The proficiency of each language is given using the Council of Europe's "Common European Framework of Reference for Languages". The scale from most basic comprehension to most advanced is: A1, A2, B1, B2, C1 and C2.

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## Personal Interests

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Dance Outside of math I'm a semi-professional dancer of contemporary and voguing. I have performed as a principal dancer of the group Bollywood Blast during Montréal Pride 2017 and 2018. In addition, I have choreographed and participated in a modern dance routine for Dance Expose society in Manchester.