

# CURRICULUM VITÆ

## Contact details

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## Research area

Algebraic topology (homotopical algebra, operads), Discrete geometry (polytopes).

## Employment

2022-2025 **The University of Melbourne**, Melbourne, Australia, *Research Fellow*  
*Mentor* : Marcy Robertson

## Studies

2019-2022 **Université Sorbonne Paris Nord**, Villetaneuse, France, *PhD in Mathematics*  
*Advisors* : Eric Hoffbeck et Bruno Vallette  
2018-2019 **Université Sorbonne Paris Nord**, Villetaneuse, France, *M.Sc. Fundamental Mathematics*  
2015-2018 **Université de Montréal**, Québec, Canada, *B.Sc. Mathematics and Physics*

## Research stays

November 2023 **Centre for Quantum Mathematics**, Odense, Denmark.  
February 2023 **Max Planck Institute for Mathematics**, Bonn, Germany.  
Sept.-Oct. 2022 **University of Copenhagen**, Copenhagen, Denmark.  
Spring 2022 **Mittag-Leffler Institute**, Stockholm, Sweden.  
December 2021 **Centre de Recerca Matemàtica**, Barcelona, Spain, with Vincent Pilaud.  
Summer 2021 **LaCIM**, Université du Québec à Montréal, Canada, with Hugh Thomas.

## Prizes and Awards

2023	<b>Prix solennel de thèse - Chancellerie des universités de Paris (10000€ EUR)</b>
2023	<b>Prix de thèse Galilée - Université Sorbonne Paris Nord (500€ EUR)</b>
2022	<b>Andrew Sisson Early-Career Researcher Award (7500\$ AUD)</b>
2019-2022	<b>Europe Horizon 2020 Marie Skłodowska-Curie Cofund PhD Fellowship</b>
2021-2022	<b>Natural Sciences &amp; Engineering Research Council of Canada PhD Scholarship</b>

## Languages

French	<i>Mother tongue</i>
English	<i>Fluent</i>
Danish	<i>Conversational</i>
German	<i>A2</i>

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## PUBLICATIONS

### Publications

- *The diagonal of the operahedra*, Advances in Mathematics, 2022, 108494, <https://doi.org/10.1016/j.aim.2022.108494>.
- *The diagonal of the multiplihedra and the tensor product of  $A_\infty$ -morphisms*, with Thibaut Mazuir, Journal de l'École polytechnique - Mathématiques, vol. 10, 2023, 405-446, <https://doi.org/10.5802/jep.221>.

### Preprints

- *Topological proofs of categorical coherence*, with Pierre-Louis Curien, submitted, <https://arxiv.org/abs/2302.07391>.
- *Cellular diagonals of permutahedra*, with Bérénice Delcroix-Oger, Vincent Pilaud and Kurt Stoeckl, submitted, <https://arxiv.org/abs/2308.12119>.
- *Steenrod operations via higher Bruhat orders*, with Nicholas J. Williams, submitted, <https://arxiv.org/abs/2309.16481>. Poster at FPSAC 2024.
- *Kashiwara–Vergne solutions degree by degree*, with Zsuzsanna Dancso, Iva Halacheva and Marcy Robertson, submitted, <https://arxiv.org/abs/2310.20420>.
- *Term rewriting on nestohedra*, with Pierre-Louis Curien, submitted, <https://arxiv.org/abs/2403.15987>.
- *Framed polytopes and higher categories*, with Anibal M. Medina-Mardones and Arnau Padrol. Poster at FPSAC 2024.

### Other publications

Mathematics and architecture.

- *Closing the Open System : Review of Nicholas Schöffer's 'La Tour Lumière Cybernétique' (1973)*, with Nina Stener Jørgensen, Footprint, vol. 16, no. 2, 2022, 135-144, <https://doi.org/10.7480/footprint.16.2.6069>.

## RESEARCH ACTIVITIES

### Invited conference speaker

October 2024	<b>Higher Structures in Prague II</b> , Prague, Czech Republic.
March 2023	<b>56th Spring Topology and Dynamics Conference</b> , Memphis, United States.
February 2023	<b>Higher Geometric Structures along the Lower Rhine</b> , Utrecht, Netherlands.
January 2023	<b>Homotopy theory meets polyhedral combinatorics</b> , Barcelona, Spain.
September 2022	<b>Higher Structures in Prague</b> , Prague, Czech Republic.

### Invited seminar talks (recent)

December 1, 2023	<b>NMSU Geometry &amp; Topology Seminar</b> , Las Cruces, United States.
September 4, 2023	<b>Topology Seminar</b> , Melbourne, Australia.
May 22, 2023	<b>Quantum Mathematics Research Seminar</b> , Odense, Denmark.
May 18, 2023	<b>Copenhagen-Jerusalem Combinatorics Seminar</b> , Copenhagen, Denmark.
March 24, 2023	<b>Pure Mathematics Seminar</b> , Melbourne, Australia.
March 13, 2023	<b>Topology Seminar</b> , Melbourne, Australia.
February 10, 2023	<b>Seminar on abstract homotopy theory</b> , Bonn, Germany.
February 3, 2023	<b>Higher Categories, Polygraphs and Homotopy Seminar</b> , Paris, France.
December 8, 2022	<b>AustMS annual meeting</b> , Sydney, Australia.
October 20, 2022	<b>TallCat Seminar</b> , Tallinn, Estonia.
September 22, 2022	<b>Categories &amp; Companions Symposium</b> , Creswick, Australia.
September 7, 2022	<b>Algebra &amp; Topology Seminar</b> , Copenhagen, Denmark.

### Organized seminars

Fall 2024	<b>Topology Seminar</b> , Melbourne, Australia.
Fall 2024	<b>Graduate Topology Seminar</b> , Melbourne, Australia.

### Organized working groups

Fall 2023	<b>Model categories</b> , Melbourne, Australia.
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## TEACHING & OUTREACH

### Courses

- The University of Melbourne, 2024, 64h.
  - Linear algebra (first year)
- ESIEE Paris, 2018-2019, 32h.
  - Introduction to Chaos Theory (third year)

### Tutorials

- The University of Melbourne, 2023, 64h.
  - Linear Algebra (first year)
- Université Sorbonne Paris Nord, 2021-2022, 64h.
  - Complex analysis (third year)
  - Mathematics for physicists (second year)
- Université Sorbonne Paris Nord, 2020-2021, 64h.
  - Complex analysis (third year)
  - Mathematics for physicists (first year)
  - Real analysis (first year)
- Université Sorbonne Paris Nord, Année 2019-2020, 64h.
  - Complex analysis (third year)
  - Algebra II (second year)
  - Introduction to mathematical structures (first year)
  - Real analysis (first year)
- ESIEE Paris, 2018-2019, 32h.
  - Fourier analysis (third year)
  - Linear algebra (first year)
  - Set Theory (first year)

### Outreach

- *Pure Math Open Day*, Melbourne, Australia, August 20, 2023.
- *My Thesis in 7 minutes*, Galileo Prize Ceremony, Villetaneuse, France, May 26, 2023.
- *Synthetic differential geometry*, IRCAM, Centre Pompidou, Paris, February 4, 2023.